

INDEX OF SHEETS

| SHEET NO. | TITLE | DRAWING NO. |
|-----------|--|-------------|
| 1 | TITLE SHEET | |
| 2 | TYPICAL SECTIONS | |
| 3 | QUANTITY TABULATION & SUMMARY | 12547 |
| 4-6 | PLAN AND PROFILE SHEETS | |
| 7 | LAYOUT OF MODIFIED BRIDGE OVER PLUM CREEK RELIEF | 12548 |
| 8 | LAYOUT OF MODIFIED BRIDGE OVER PLUM CREEK | 12549 |
| 9 | DETAILS OF STANDARD R.C. PILE BENTS | 5492-A |
| 10 | BENTS - PLUM CREEK RELIEF | 12550 |
| 11 | BENTS - PLUM CREEK | 12551 |
| 12 | TYPICAL DETAILS PLUM CREEK BRIDGES | 12552 |
| 13 | DETAILS OF STANDARD 28'-0" R.C. SLAB SPAN | 5492 |
| 14 | DETAILS OF STANDARD PRECAST CONCRETE PILES | 2382 |
| 15 | LAYOUT OF DETOUR BRIDGES | 12553 |
| 16 | DETAILS OF DETOUR BRIDGES | 12554 |
| 17 | DETAILS OF SODDING AND SEEDING | 1866 * |
| 18 | EMBANKMENT CONSTRUCTION AT BRIDGE ENDS AND BACKFILL FOR STRUCTURES | 1888 REV. * |
| 19 | BASIS FOR COMPUTING EXCAVATION FOR STRUCTURES | 1891 * |
| 20 | BASIS FOR COMPUTING EXCAVATION FOR STRUCTURES | 1891-A * |
| 21 | DETAILS OF STANDARD TYPE "C" BRIDGE NAME PLATES | 2389-A * |
| 22 | EXISTING BRIDGE ON S.H. 355 | 12555 |
| 24 | STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION | 1896-A |
| 25 | METAL PLATE GUARD OR GUARD FENCE | GR-7 * |
| 26 | REINFORCED CONCRETE MARKERS | FPM-2 * |
| 27 | STANDARD PIPE CULVERTS AND HEADWALLS | FPC-12 * |
| 28-44 | CROSS-SECTIONS | |

* This standard not normally included in plans sold to prospective bidders but may be obtained on request.

BRIDGE NO. 29264
STA. 96+47.00 TO STA. 98+43.00

BEGINNING OF JOB 3615 STA. 69+00.00
CORPS OF ENGINEERS
CONTRACT NO. DA-34-066-CIVENG-62-1312

R 27 W

STATE OF ARKANSAS
STATE HIGHWAY COMMISSION

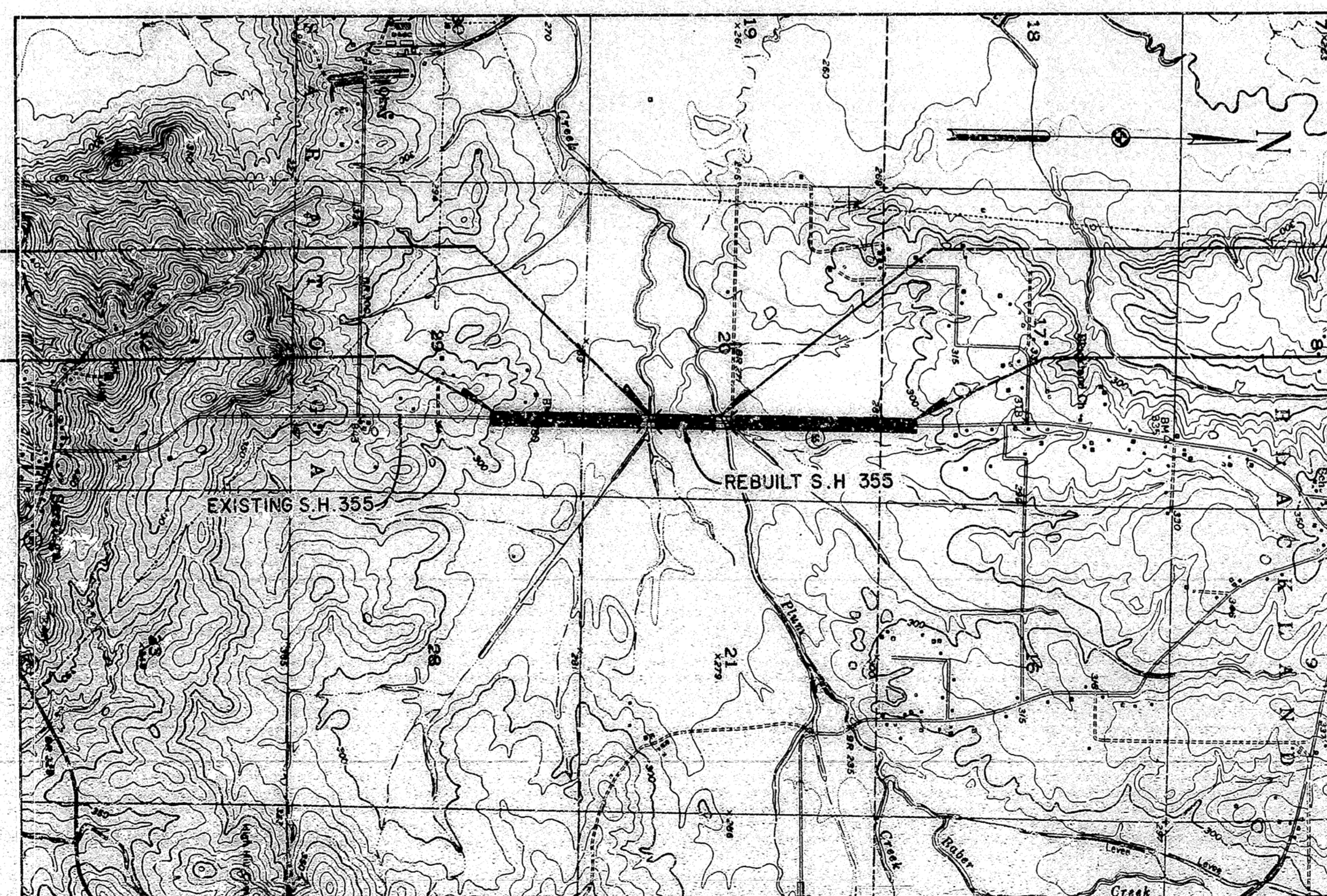
PLAN AND PROFILE OF PROPOSED
STATE HIGHWAY
HIGHWAY RELOCATIONS MILLWOOD RESERVOIR
CORPS OF ENGINEERS CONTRACT NO. DA-34-066-CIVENG-62-1312
STATE HIGHWAY 355 RECONSTRUCTION

HOWARD COUNTY
ROUTE 355 SECTION 1

JOB 3615

LAYOUT SCALE

1"=2000'



THIS

CONVENTIONAL SIGNS

| | |
|-------------------|--|
| STATE LINE | RETAINING WALL |
| COUNTY LINE | BASE OR SURVEY LINE |
| CITY OR VILLAGE | LEVEE |
| TOWNSHIP LINE | CULVERTS |
| SECTION LINE | TELEPHONE POLE |
| GRANT LINE | JOINT POWER & TELE. POLE |
| FENCE LINE | POLES TO BE RELOCATED NON-REIMBURSABLE |
| UNFENCED PROPERTY | POLES TO BE RELOCATED REIMBURSABLE |
| RIGHT-OF-WAY LINE | HEDGE |
| TRAVELED WAY | BUILDINGS |
| RAILROADS | |

SCALES { PLAN 1"=100'
PROFILE HORIZ. 1"=100' VERTICAL 1"=10'

| FINAL LENGTH | | | |
|-------------------------|---------------|-------------|--|
| GROSS LENGTH OF PROJECT | 7 600 FEET OR | 1.439 MILES | |
| NET " " ROADWAY | 7 208 " " | 1.365 " " | |
| NET " " BRIDGES | 392 " " | .074 " " | |
| NET " " PROJECTS | 7 600 " " | 1.439 " " | |

P&S JOB 3610

SPECIFICATIONS ADOPTED BY STATE HIGHWAY COMMISSION DEC.9,1959

DIVISION PART
I
II 1,2,5,8-A,8-B,9,10
III

WITH SPECIAL PROVISIONS AS FOLLOWS:

| SPECIAL PROVISION NO. | TITLE |
|-----------------------|---|
| 2-4 | STATE LICENSE FOR CONTRACTORS |
| 2-5 | REVISION OF ARTICLE 2.5 - PREPARATION OF PROPOSAL |
| 2-7 | COMPETENCY OF BIDDERS |
| 2-8 | REVISION OF ARTICLE 2.11 - DISQUALIFICATION OF BIDDERS |
| 2-9 | PROPOSAL GUARANTY - BID BOND |
| 6-2 | MANUFACTURED MATERIALS OF FOREIGN ORIGIN |
| 6-3 | SOURCES OF MATERIALS |
| 6-4 | MATERIALS |
| 7-13 | REQUIRED CONTRACT PROVISIONS FOR WORK FINANCED BY CORPS OF ENGINEERS' FUNDS |
| 7-21 | COORDINATION OF WORK |
| JOB 3615 | PROJECT BULLETIN BOARD AND CONSTRUCTION SIGNS |
| 7-23 | CONTROL OF JOHNSON GRASS |
| 7-24 | MAINTENANCE OF DRAINAGE DITCHES AND CHANNELS |
| 8-1 | PARTIAL WORK ORDER |
| 8-2 | EMPLOYMENT OF LABOR |
| 8-10 | REVISION OF SECTION 8 - CANCELLATION OF CONTRACT |
| 8-11 | LIMITATIONS TO SUBLETTING OR ASSIGNING THE CONTRACT |
| 8-13 | REVISION OF ARTICLE 8.7 - FAILURE TO COMPLETE WORK ON TIME |
| 111-3 | REVISION OF ARTICLE 111.2 - SELECTED MATERIAL |
| 114-1 | REMOVAL AND DISPOSAL OF FENCE |
| 202-3 | GRADING REQUIREMENTS FOR GRAVEL BASE COURSE |
| 503-1 | REVISION OF ARTICLE 503.3(4) & (f) - BITUMINOUS SURFACE TREATMENT |
| 802-5 | ADDMIXTURES FOR RETARDING SET OF CONCRETE |
| 804-5 | REVISION OF ARTICLE 804.10 - MANUFACTURE OF PRECAST CONCRETE PILES |
| 805-7 | REVISION OF SECTION 805 - BRIDGE RAILINGS |
| 850-1 | ENGINEER'S FIELD OFFICE |
| 909-6 | REVISION OF SECTION 909 - PIPE CULVERTS |
| 917-1 | REVISION OF SECTION 917 - GUARD FENCES |
| 920-4 | SEEDING |
| 951-2 | REMOVING AND RESETTNG RIGHT-OF-WAY MARKERS |
| 1008-1 | DETOUR CONSTRUCTION |
| 1008-2 | MAINTENANCE OF TRAFFIC |
| JOB 3615 | REVISION OF SECTION 5 - CONTROL OF THE WORK |
| JOB 3615 | REVISION OF SECTION 101 - CLEARING AND GRUBBING |
| JOB 3615 | RIPRAP AND BACKFILL |
| JOB 3615 | REVISION OF SECTION 804 - BEARING PILING |
| JOB 3615 | REVISION OF SECTION 801 - EXCAVATION FOR STRUCTURES |
| JOB 3615 | REMOVING AND RESETTNG EXISTING BRIDGE DECK SLABS |
| JOB 3615 | SUPPLEMENT TO SP 1008-1 - DETOUR CONSTRUCTION |
| JOB 3615 | REVISION OF SECTION 103 - ROADWAY EXCAVATION |
| 8-14 | REVISION OF ARTICLE 8.5 - LEGAL HOLIDAYS |
| JOB 3615 | SCHEDULE OF IMPOUNDMENT OF WATER |
| JOB 3615 | ISSUANCE OF WORK ORDER |

BRIDGE NO. 2927
STA. 110+67.00 TO STA. 112+63.00

END OF JOB 3615 STA. 145+00.00
CORPS OF ENGINEERS
CONTRACT NO. DA-34-066-CIVENG-62-1312

| | |
|--------------------------|-------------------------|
| RECOMMENDED FOR APPROVAL | BRIDGE DESIGN ENGINEER |
| RECOMMENDED FOR APPROVAL | ROADWAY DESIGN ENGINEER |
| RECOMMENDED FOR APPROVAL | DISTRICT ENGINEER |
| APPROVED | CHIEF ENGINEER |

U.S. ARMY ENGINEER DISTRICT
TULSA, OKLAHOMA

APPROVED

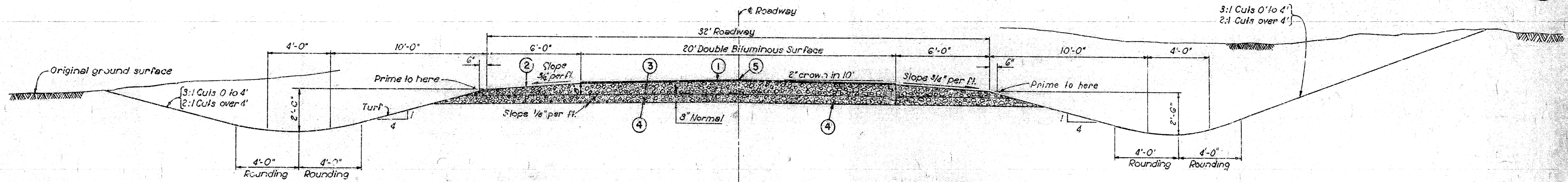
Chief, Engineering Division

Date

PREPARED AND RECOMMENDED BY
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS

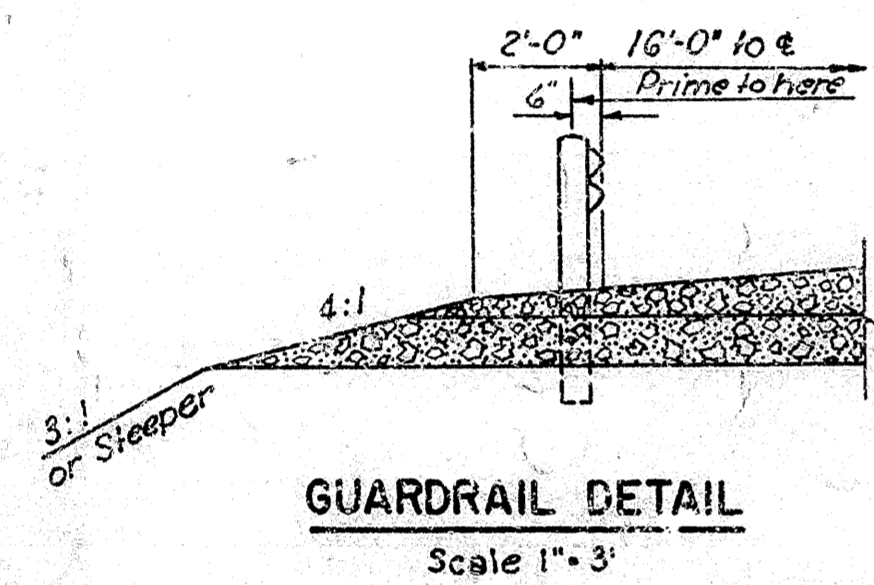
KANSAS CITY

NEW YORK



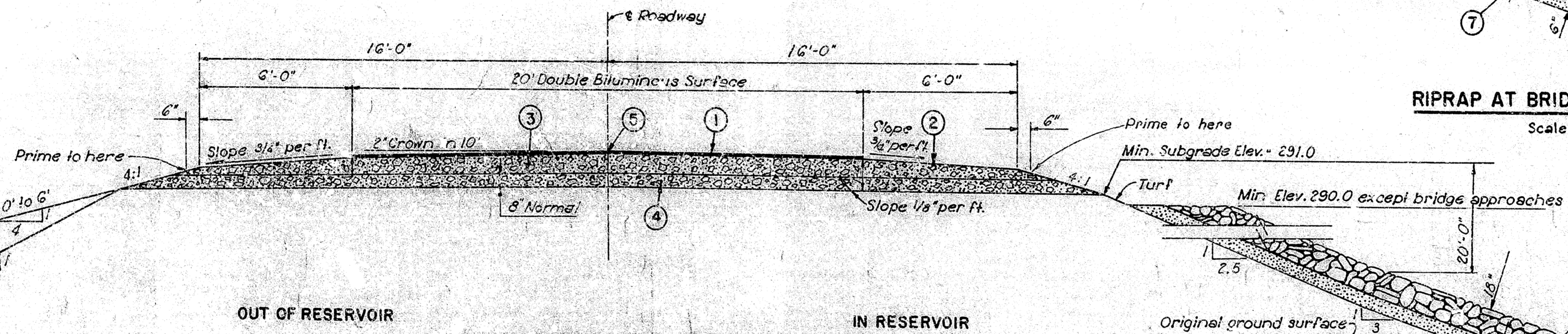
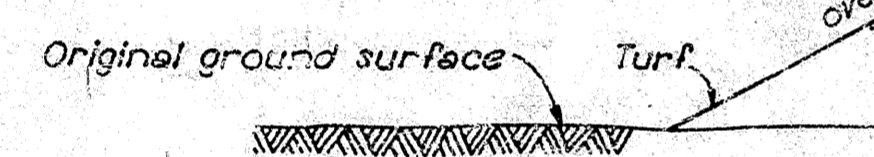
TYPICAL EXCAVATION SECTION

Scale 1" = 3'



GUARDRAIL DETAIL

Scale 1" = 3'

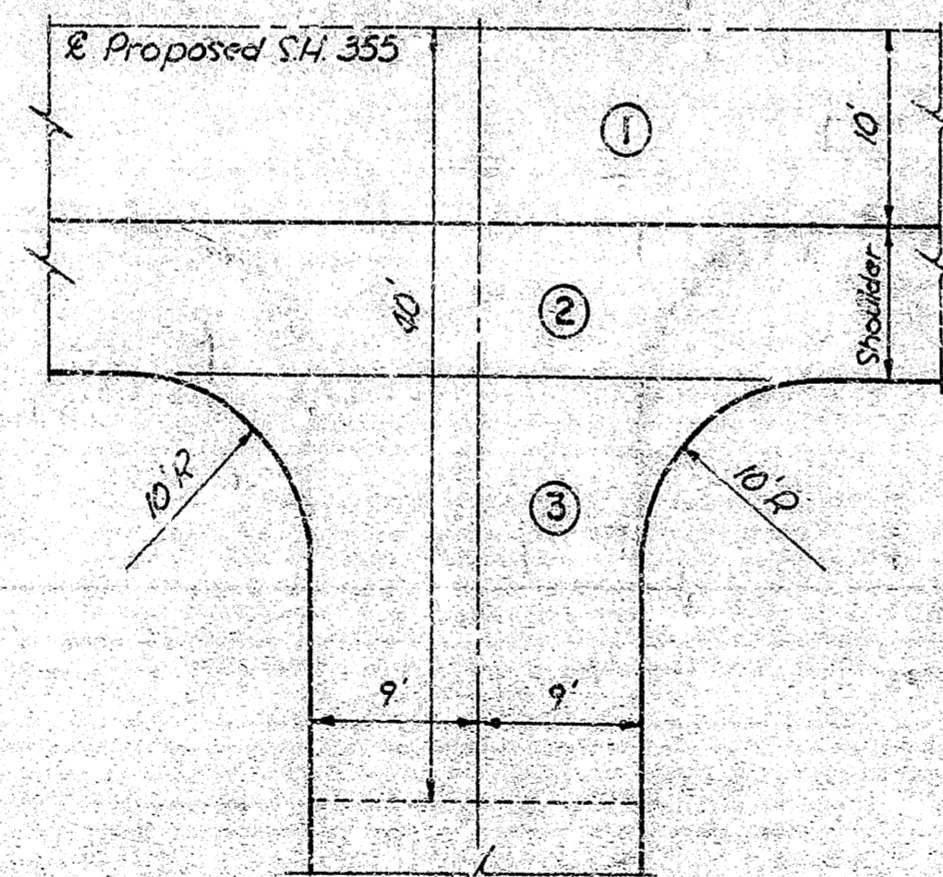


TYPICAL EMBANKMENT SECTION

Scale 1" = 3'

OUT OF RESERVOIR

IN RESERVOIR



FIELD ENTRANCES

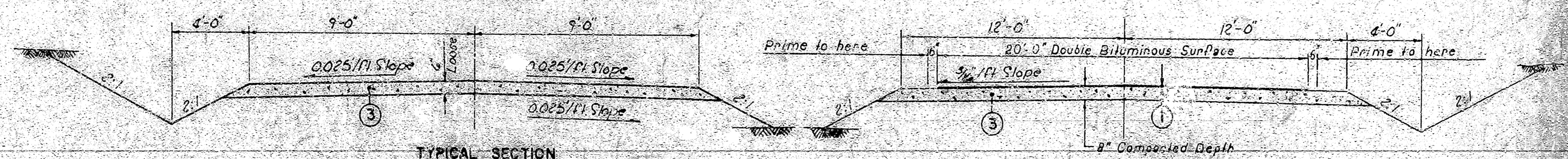
Scale 1" = 10'

Note:
For all field entrances use the
typical section from 8' of
improvement out to 40 ft.
Beyond 40 ft. use GB-3 (22 cy./Sta.)

| ADDITIONAL THICKNESS SELECTED MATERIAL SUBBASE | | |
|--|--|---------------------------|
| GROUP INDEX TOP 12" OF SUBGRADE | | MIN COMPACTED DEPTH |
| 0 - 4 | | 0" |
| 4 - 8 | | 4" |
| 8 - 12 | | 6" |
| 12 - 16 | | 9" |
| 16 - 20 | | 12" |

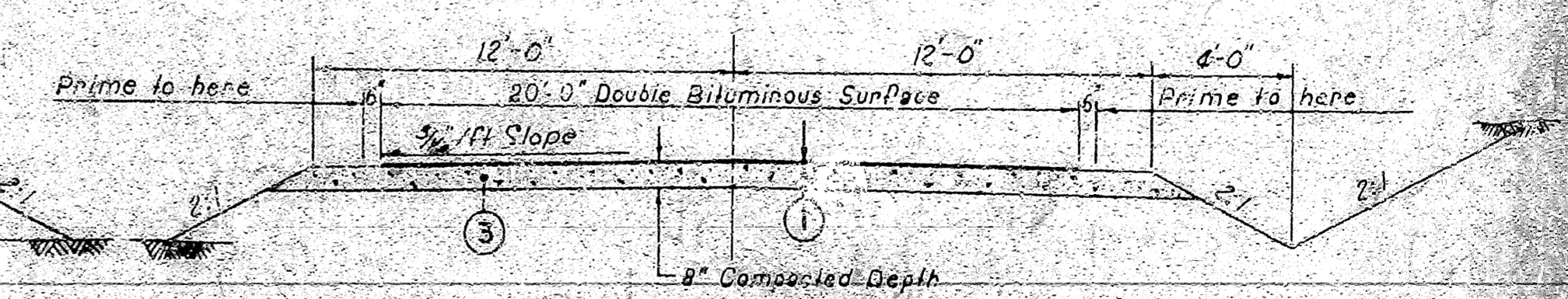
- ① Double Bituminous Surface
- ② Single Bituminous Surface
- ③ Gravel Base Course (GB-3)
- ④ Selected Material Subbase (SM-2)
- ⑤ Profile Grade
- ⑥ Riprap
- ⑦ Backing for Riprap

Notes:
Item 4 above denotes the normal thickness of selected
material. For additional thickness see tabulation.
Extend prime coat 1/2 ft. beyond each area to
receive surface treatment.



TYPICAL SECTION FIELD ENTRANCES

Scale 1" = 3'



TYPICAL SECTION DETOUR

Scale 1" = 3'

STRUCTURES

| STATION | LOCATION | DESCRIPTION | R.C.P. 24" LIN.FT. | C.M.P. 18" LIN.FT. | BED. & RELAY LIN.FT. | REMOVING PIPE CULVERTS LIN.FT. | CLASS (A)(AE) CONC. CU.YD. | REIN. STEEL LB. | DWG. NO. |
|---------|----------|--|--------------------------|--------------------------|-------------------------------|---|-------------------------------------|-----------------------|-------------|
| 74+48 | 32' R/L | C.M. Arch Pipe Culvert to be removed | | | | 25' 15" 20' | | | |
| 74+48 | 55' R/L | Install C.M. Pipe Culvert | | 26 | C | | | | |
| 76+30 | 32' L/L | C.M. Arch Pipe Culvert to be removed | | | | 29' 18" 20' | | | |
| 76+30 | 60' L/L | Install C.M. Pipe Culvert | | 32 | C | | | | |
| 86+42 | 55' L/L | C.M. Arch Pipe Culvert to be removed | | | | 36' 22" 30' | | | |
| 86+42 | 51' R/L | C.M. Arch Pipe Culvert to be removed | | | | 36' 22" 30' | | | |
| 88+00 | 90' R/L | Install C.M. Pipe Culvert | | 68 | C | | | | |
| 88+00 | 90' L/L | Install C.M. Pipe Culvert | | 68 | C | | | | |
| 101+00 | 90' L/L | Install C.M. Pipe Culvert | | 64 | C | | | | |
| 105+00 | 90' R/L | Install C.M. Pipe Culvert | | 64 | C | | | | |
| 107+28 | 72' R/L | R.C. Pipe Culvert to be removed | | | | 18' 18" | | | |
| 109+00 | 90' R/L | Install C.M. Pipe Culvert | | 68 | C | | | | |
| 109+00 | 90' L/L | Install C.M. Pipe Culvert | | 64 | C | | | | |
| 112+28 | 58' L/L | C.M. Arch Pipe Culvert to be removed | | | | 36' 22" 30' | | | |
| 113+50 | 94' L/L | Install C.M. Pipe Culvert | | 64 | C | | | | |
| 123+12 | 6 | R.C. Pipe Culvert w. Hauls, to be abandoned | | | | 24' 35" | | | |
| 132+47 | 6 | R.C. Pipe Culvert w. Hauls, to be relayed | | | | 24' 35" | | | |
| 132+47 | 6 | Construct R.C. Pipe Culvert w. Std. Hauls, R/L | 30 | | | | 2.68 | 112 | FPC-12 |
| Total | | | 30 | 522 | | 38 | 2.68 | 112 | |

Note: Removing Pipe Culverts is subsiding to the items of road way excavation

SURFACING

| DOUBLE BITUMINOUS SURFACE TREATMENT | | | | | | | | | | | | | |
|-------------------------------------|-----------|----------|-------|--------|--------------|-------|-----------------------------|---------|--------|-------|--------|----------------|--------|
| PRIME COAT | | | | | | | MINERAL AGGREGATE & ASPHALT | | | | | | |
| STATION | STATION | LENGTH | WIDTH | AREA | QUAN. (GAL.) | | STATION | STATION | LENGTH | WIDTH | AREA | QUAN. (CU.YD.) | |
| FT. | FT. | FT. | FT. | SQ.YD. | NOR. | ADD'L | FT. | FT. | FT. | FT. | SQ.YD. | NOR. | ADD'L |
| 69+00.00 | 145+00.00 | 2208.00 | 20.0 | 16,018 | 4,407 | 4,407 | 200 | 16,018 | 4.67 | 4.67 | 11,213 | | 11,213 |
| SINGLE BITUMINOUS SURFACE TREATMENT | | | | | | | | | | | | | |
| 69+00.00 | 75+91.73 | 691.73 | 13.0 | 999 | 400 | | 400 | 12.0 | 934 | 16 | | 16 | 374 |
| 75+91.73 | 76+41.73 | 50.00 | 13.0 | 72 | 29 | | 29 | 12.0 | 67 | 1 | | 1 | 27 |
| 76+41.73 | 96+47.00 | 2,005.27 | 13.0 | 2,897 | 1,159 | | 1,159 | 12.0 | 2,674 | 44 | | 44 | 1,070 |
| 96+47.00 | 110+67.00 | 1,224.00 | 13.0 | 1,768 | 707 | | 707 | 12.0 | 1,632 | 27 | | 27 | 653 |
| 110+67.00 | 122+80.27 | 1,017.27 | 13.0 | 1,469 | 588 | | 588 | 12.0 | 1,356 | 23 | | 23 | 542 |
| 122+80.27 | 123+30.27 | 50.00 | 13.0 | 72 | 29 | | 29 | 12.0 | 67 | 1 | | 1 | 27 |
| 123+30.27 | 145+00.00 | 2,169.73 | 13.0 | 3,134 | 1,254 | | 1,254 | 12.0 | 2,893 | 48 | | 48 | 1,157 |
| Total | | | | | | | | | 10,573 | | | 227 | 15,063 |

DETOUR QUANTITIES

| DOUBLE BITUMINOUS SURFACE TREATMENT | | | | | | | | | | | GRAVEL BASE |
|-------------------------------------|-----------|----------|-------|--------|-----------------------------|-------|--------|--------|--------|--------|----------------|
| PRIME COAT | | | | | MINERAL AGGREGATE & ASPHALT | | | | | TON | |
| STATION | STATION | LENGTH | WIDTH | AREA | QUAN. | WIDTH | AREA | CL-10 | ASPH. | | |
| FT. | FT. | FT. | FT. | SQ.YD. | GAL. | FT. | SQ.YD. | CU.YD. | GAL. | | |
| 65+86.16 | 148+13.84 | 3,080.68 | 21.0 | 18,554 | 7,542 | 20.0 | 17,957 | 524 | 12,570 | 11,053 | |
| Total | | | | | 7,542 | | | 524 | 12,570 | 11,053 | |

BASIS OF ESTIMATE

Prime Coat 04 Gal./Sq.Yd.
 Class 10 Mineral Aggregate 460 Lbs./Sq.Yd. 1st Application 2400 Lbs./Cu.Yd.
 Class 10 Mineral Aggregate 300 Lbs./Sq.Yd. 2nd Application
 Asphalt 07 Gal./Sq.Yd.

BASE MATERIALS

| GRAVEL BASE COURSE | | | | | | | | SELECTED MATERIAL | |
|--------------------|-----------|----------|--------------------------|--------|------------|--------|-----------------------------|-------------------|--|
| STATION | STATION | LENGTH | TONS PER 100' STA. | NORMAL | ADDITIONAL | TOTAL | CU.YDS. PER 100' STA. | NORMAL | |
| FT. | FT. | FT. | 100' STA. | TON | TON | TON | 100' STA. | CU.YD. | |
| 69+00.00 | 75+91.73 | 691.73 | 172 | 1,115 | 39 | 1,229 | 112 | 775 | |
| 75+91.73 | 76+41.73 | 50.00 | 176 | 80 | 47 | 135 | 117 | 58 | |
| 76+41.73 | 96+47.00 | 2,005.27 | 180 | 3,609 | 166 | 3,775 | 122 | 2,446 | |
| 96+47.00 | 110+67.00 | 1,224.00 | 180 | 2,203 | 330 | 2,533 | 122 | 1,493 | |
| 110+67.00 | 122+80.27 | 1,017.27 | 180 | 1,831 | 80 | 1,911 | 122 | 1,241 | |
| 122+80.27 | 123+30.27 | 50.00 | 176 | 88 | | 88 | 117 | 59 | |
| 123+30.27 | 145+00.00 | 2,169.73 | 172 | 3,132 | | 3,132 | 112 | 2,150 | |
| Total | | | | | | 13,403 | | 8,503 | |

BASIS OF ESTIMATE

Normal Section w. G.F. 180 Ton/Sta. Normal Section w. G.F. 122 Cu.Yds./Sta.
 Normal Section 172 Ton/Sta. Normal Section 112 Cu.Yds./Sta.

HOWARD NEEDLES TAMMEN & BERGENHOFF
CONSULTING ENGINEERS
LAUREL 101 NEW YORK

EARTHWORK

| STATION | STATION | UNCLASSIFIED EXCAVATION | | | EMBANKMENT MATERIAL | | | SPEC'L. COMPT. OF EARTH'WK. | DETOUR REMOVAL |
|---------|---------|-------------------------|----------|---------|---------------------|----------|---------|-----------------------------------|-------------------|
| | | NORMAL | ADD'T'L. | TOTAL | NORMAL | ADD'T'L. | TOTAL | | |
| | | CU. YD. | CU. YD. | CU. YD. | CU. YD. | CU. YD. | CU. YD. | | |
| 69+00 | 96+71 | 1,409 | | 1,409 | 125,227 | 8,055 | 133,282 | 134,691 | |
| 96+71 | 110+92 | 517 | 8,545 | 9,062 | 70,718 | 14,450 | 85,168 | 94,230 | |
| 110+92 | 145+00 | 1,128 | | 1,128 | 71,490 | 3,650 | 75,140 | 76,268 | |
| Detour | | 6,138 | | 6,138 | 11,384 | | 11,384 | 15,522 | 14,602 |
| Total | | | | 17,537 | | | 305,174 | 322,711 | 14,602 |

Notes: Detour Removal to be paid for as Unclassified Excavation.

* 8345 Cu.Yds. of this quan. to be paid for as Unclassified Excavation (Channel Change)

REMOVE & RESET R/W MARKERS

| STATION | STATION | LOCATION | NUMBER |
|---------|---------|-----------|--------|
| 69+00 | 145+00 | Rt. & Lt. | 36 |
| Total | | | 36 |

RIGHT-OF-WAY MARKERS

| STATION | STATION | LOCATION | NUMBER |
|---------|---------|-----------|--------|
| 69+00 | 145+00 | Rt. & Lt. | 5 |
| Total | | | 5 |

GUARD FENCE (TYPE A)

| LEFT SIDE | | | RIGHT SIDE | | |
|-----------|-----------|----------|------------|-----------|----------|
| STATION | STATION | LENGTH | STATION | STATION | LENGTH |
| | | LIN.FT. | | | LIN.FT. |
| 73+51.23 | 76+04.77 | 253.54 | 73+49.73 | 74+28.77 | 78.54 |
| 76+04.77 | 87+08.77 | 1,128.54 | 74+28.77 | 87+23.77 | 1,316.04 |
| 87+08.77 | 96+45.77 | 889.54 | 87+23.77 | 96+45.77 | 829.54 |
| 96+45.77 | 100+73.77 | 228.54 | 96+45.77 | 104+85.27 | 441.04 |
| 100+73.77 | 108+83.54 | 754.91 | 104+85.27 | 109+80.77 | 364.04 |
| 108+83.54 | 110+65.77 | 181.04 | 109+80.77 | 110+45.77 | 181.04 |
| 110+65.77 | 113+17.77 | 59.54 | 110+45.77 | 112+64.23 | 239.14 |
| 113+17.77 | 136+51.77 | 2,278.54 | 112+64.23 | 136+55.27 | 239.14 |
| Total | | 5,669.59 | | | 3,743.28 |

Note: Use Concrete Posts

CLEARING & GRUBBING

| STATION | STATION | CLEARING | | GRUBBING | |
|---------|---------|----------|-------|----------|-------|
| | | ACRES | ACRES | ACRES | ACRES |
| 69+00 | 96+00 | 0.61 | 0.61 | | |
| 96+00 | 120+00 | 1.36 | 1.13 | | |
| 120+00 | 145+00 | 0.01 | 0.02 | | |
| Total | | 2.01 | 1.76 | | |

SEEDING & WATER

| STATION | STATION | SEEDING | | WATER FOR GRASS | |
|---------|---------|---------|--------|-----------------|--------|
| | | ACRES | M-GAL. | ACRES | M-GAL. |
| 69+00 | 145+00 | 1.25 | 18.2 | | |
| Total | | 1.25 | 18.2 | | |

Note: Emulsified Asphalt to be applied to all seeded areas.

RIPRAP AND BACKING

| STATION | STATION | LOCATION | RIPRAP | | BACKING FOR RIPRAP | |
|---------|---------|-----------|---------|---------|--------------------|---------|
| | | | CU. YD. | CU. YD. | CU. YD. | CU. YD. |
| 73+50 | 97+00 | Rt. & Lt. | 12,640 | 4,143 | | |
| 97+00 | 111+33 | Rt. & Lt. | 9,368 | 2,924 | | |
| 111+33 | 136+50 | Rt. & Lt. | 6,693 | 2,794 | | |
| Total | | | 30,701 | 9,861 | | |

CONSTRUCTION IDENTIFICATION SIGNS

| STATION | NUMBER |
|------------|--------|
| Rt. 69+00 | 1 |
| Lt. 145+00 | 1 |
| Total | 2 |

REMOVAL & DISPOSAL OF FENCE

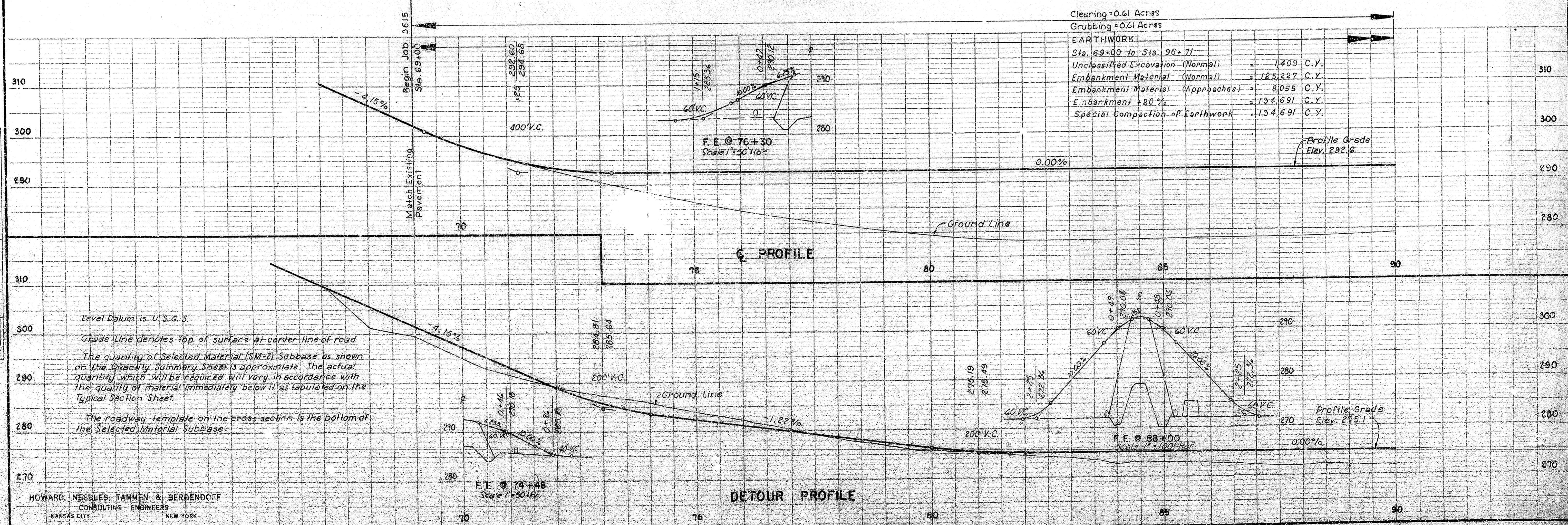
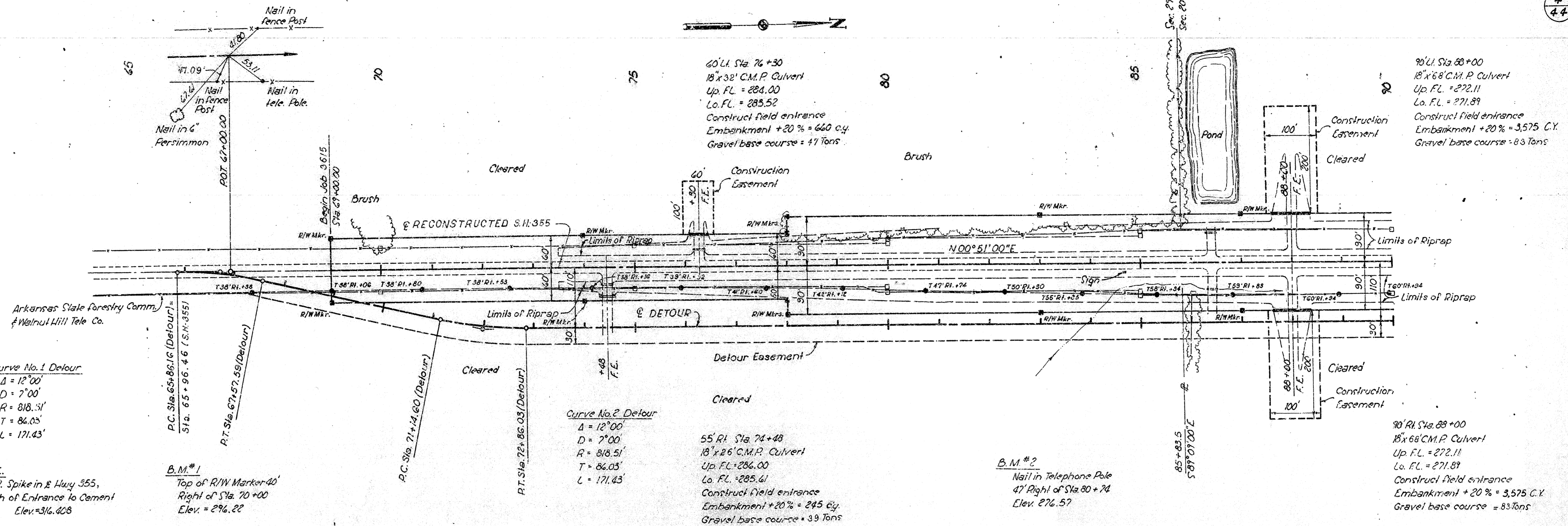
| STATION | STATION | LOCATION | LENGTH |
|---------|---------|-----------|--------|
| 69+00 | 145+00 | Rt. & Lt. | 952 |
| Total | | | 952 |

SUMMARY OF BRIDGE QUANTITIES

| BRIDGE NAME | BRIDGE NO. | ITEM | COMMON EXC. FOR STRUCTURES | CLASS "S"(AE) | REIN. STEEL | PRECAST CONC. PILES | STEEL OR ALUMINUM PLATE GUARD BR. RAILING | BRIDGE NAME | REM. & RESET EXIST. BR. DECK SLABS |
|-------------|------------|-------------------|----------------------------|---------------|-------------|---------------------|---|-------------|------------------------------------|
| | | | CU. YD. | CU. YD. | LB. | LIN. FT. | LIN. FT. | PLATE | COMPL. ITEM |
| PLUM CREEK | 2927-A | End Bent 1st | 41.2 | 13.98 | 2,044 | 226.4 | | | |
| | | Piers 1,2,3,4,5,6 | 313.0 | 167.98 | 30,718 | 313.4 | | | |
| | | Spans 1st | | 78.70 | 13,242 | | 113.0 | | |
| | | Total for Bridge | 354.2 | 260.66 | 46,004 | 589.8 | 113.0 | 1 | 50% |
| PLUM CREEK | 2926-A | End Bent 1st | 41.2 | 13.98 | 2,044 | 260.4 | | | |
| | | Piers 1,2,3,4,5,6 | 214.7 | 134.94 | 28,674 | 341.4 | | | |
| | | Spans 1st | | 78.70 | 13,242 | | 113.0 | | |
| | | Total for Bridge | 255.9 | 247.62 | 43,962 | 601.8 | 113.0 | 1 | 50% |
| | | | 610.1 | 508.28 | 89,966 | 1,191.6 | 226.0 | 2 | 100% |

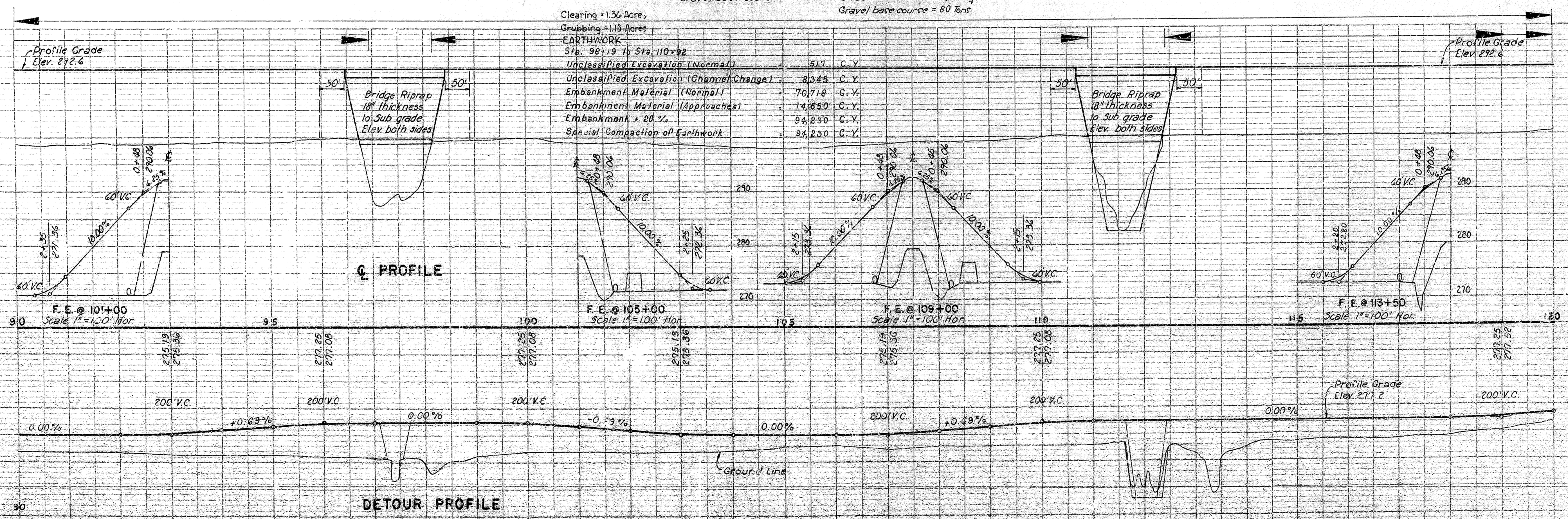
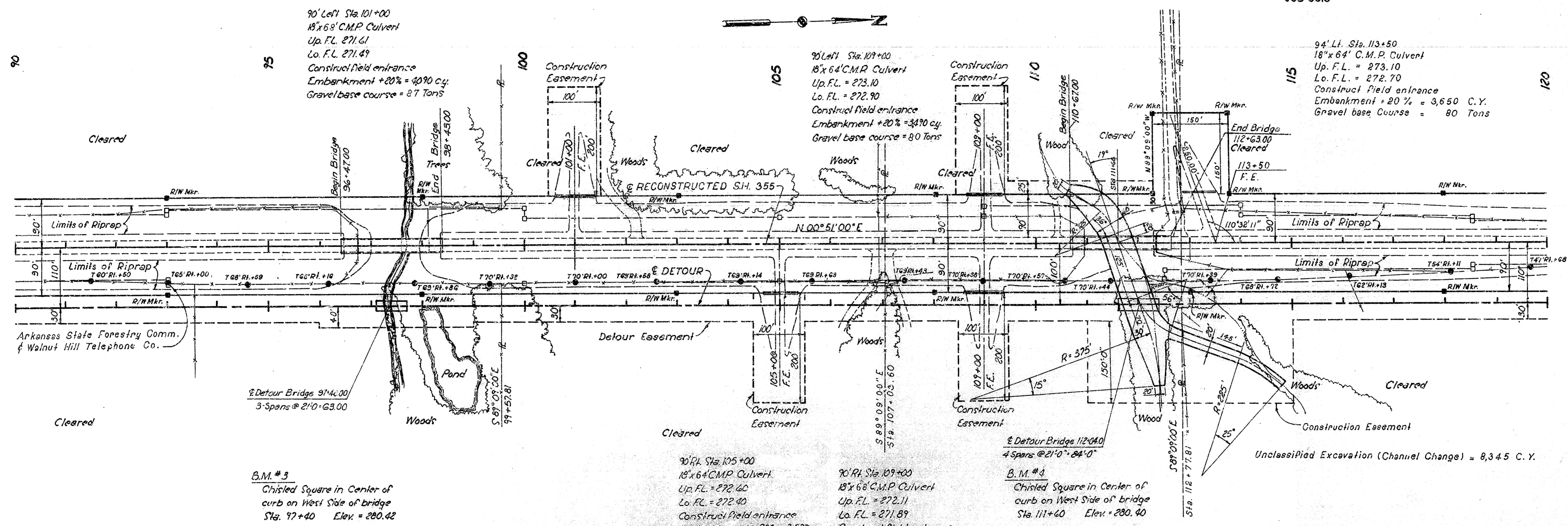
SUMMARY OF QUANTITIES

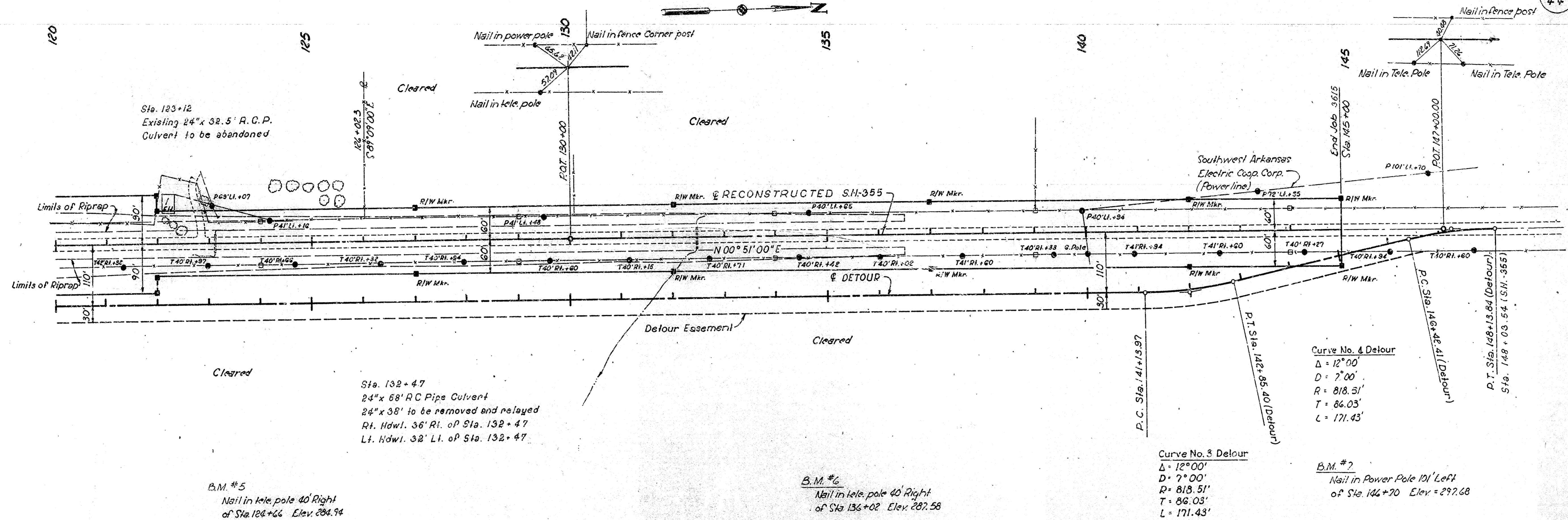
| ITEM | ITEM | QUAN. | UNIT |
|------------|--|---------|-------------|
| Sp. 101 | Clearing | 2.01 | Acre |
| Sp. 101 | Grubbing | 1.76 | Acre |
| 102 | Unclassified Excavation | 9,192 | Cu.Yd. |
| Sp. 103 | Unclassified Excavation (Channel Change) | 8,345 | Cu.Yd. |
| 105 | Embankment Material | 305,174 | Cu.Yd. |
| 107 | Special Compaction of Earthwork | 322,711 | Cu.Yd. |
| Sp. 111 | Selected Material (Class SM-2) | 8,503 | Cu.Yd. |
| Sp. 114-1 | Removal and Disposal of Fence | 952 | Rod |
| Sp. 202 | Gravel Base Course (Class GB-3) | 24,456 | Ton |
| 201 | Prime Coat | 18,115 | Gal. |
| Sp. 503 | Class 10 Mineral Aggregate in Bituminous Surface Treatment | 1,151 | Cu.Yd. |
| Sp. 503 | Asphalt in Bituminous Surface Treatment | 27,633 | Gal. |
| Sp. 801 | Common Excavation for Structures | 610.1 | Cu.Yd. |
| Sp. 802 | Class A (AC) Concrete | 2.68 | Cu.Yd. |
| Sp. 802 | Class S (AC) Concrete | 508.28 | Cu.Yd. |
| 803 | Reinforcing Steel | 93,076 | Lb. |
| Sp. 804 | Precast Concrete Piling (16" Octagonal) | 1,191.6 | Lin.Ft. |
| Sp. 805-1 | Steel or Aluminum Plate Guard Bridge Railing | 226.0 | Lin.Ft. |
| 812 | Bridge Name Plates (Type C) | 2 | Plate |
| Sp. 909 | 24" Reinforced Concrete Pipe Culverts (Class III) | 30 | Lin.Ft. |
| 909 | 18" Corrugated Metal Pipe Culverts | 522 | Lin.Ft. |
| 911 | Relaying Culvert Pipe (24" R.C.) | 38 | Lin.Ft. |
| Sp. 917 | Guard Fence (Type A) | 11,433 | Lin.Ft. |
| Sp. 920-4 | Seeding | 1.25 | Acre |
| 923 | Right-of-Way Markers | 5 | Each |
| Sp. 931-2 | Removing and Resetting Right of Way Markers | 36 | Each |
| Sp. 1008-1 | Detour Construction | 100% | Compl. Item |
| Sp. 1008-2 | Maintenance of Traffic | 100% | Compl. Item |
| Sp. | Riprap | 30,701 | Cu.Yd. |
| Sp. | Backing for Riprap | 9,861 | Cu.Yd. |
| Sp. 920-4 | Water for Grass | 18.2 | M-Gal. |
| Sp. | Removing and Resetting Existing Bridge Deck Slabs | 100% | Compl. Item |



FINAL
SURVEY
NOTES
NO.

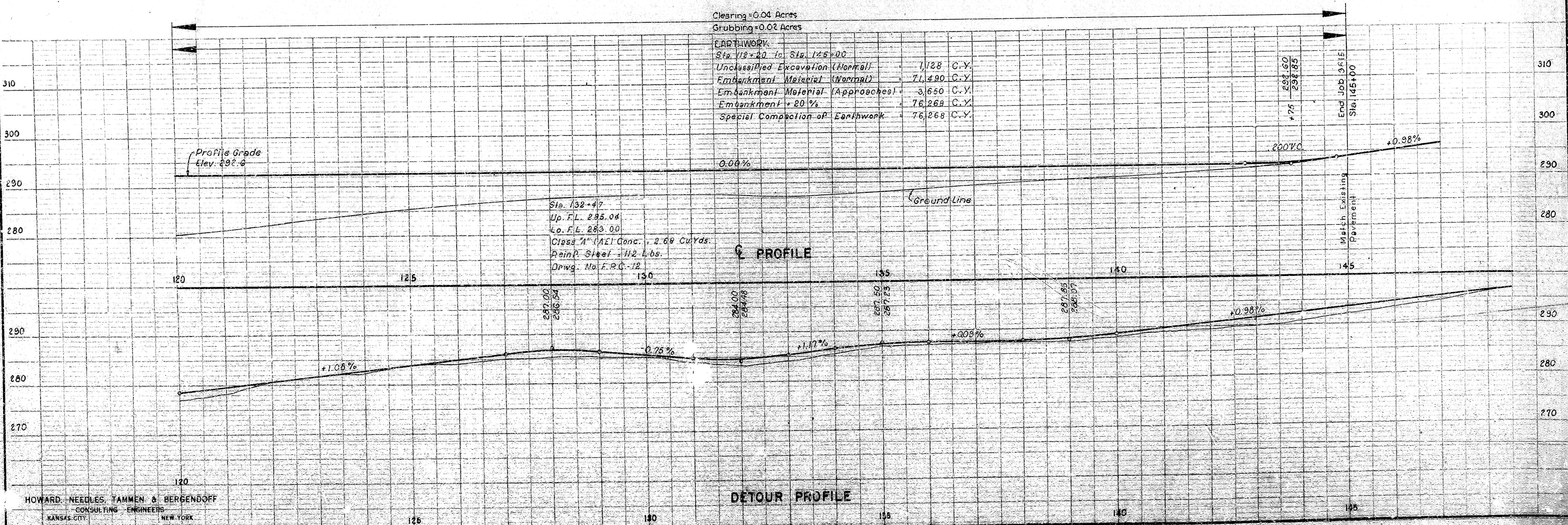
DATE
BY
ORIGINAL
SURVEY
NOTES
NO.

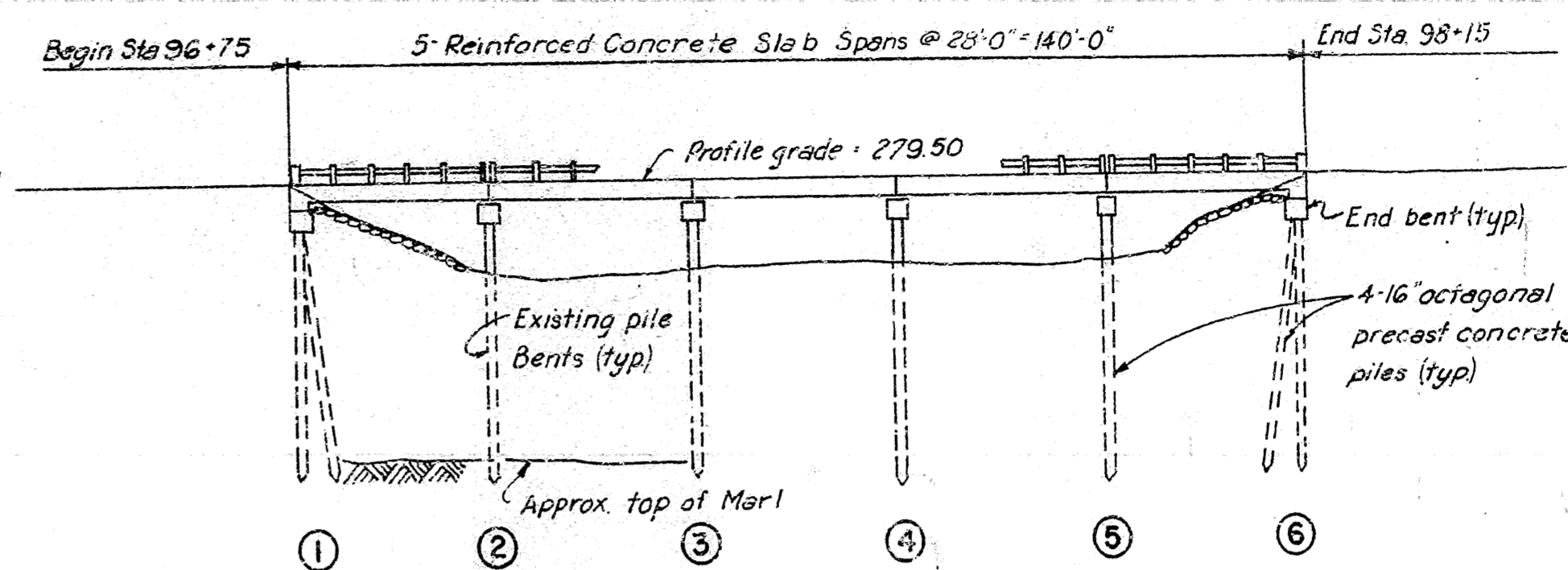
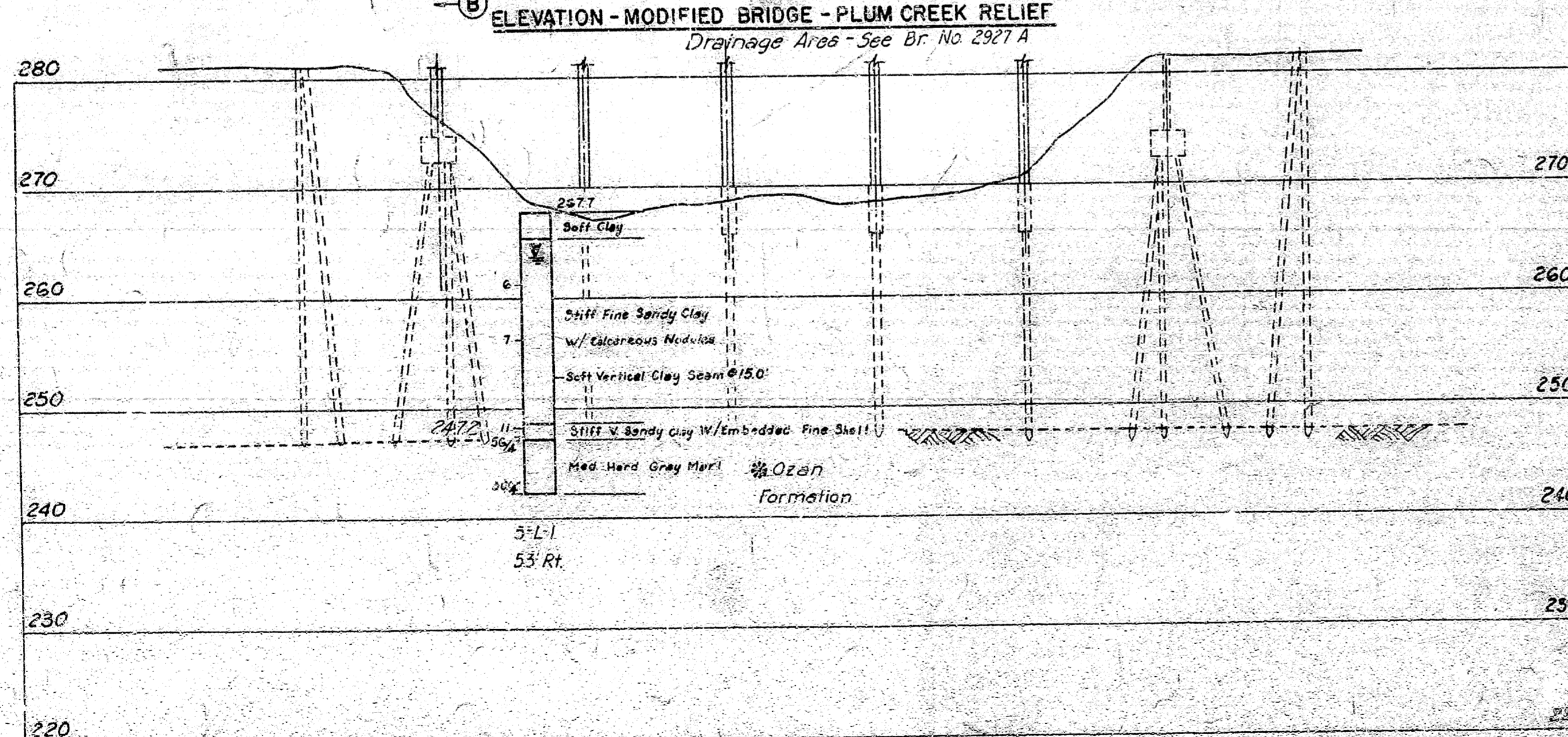
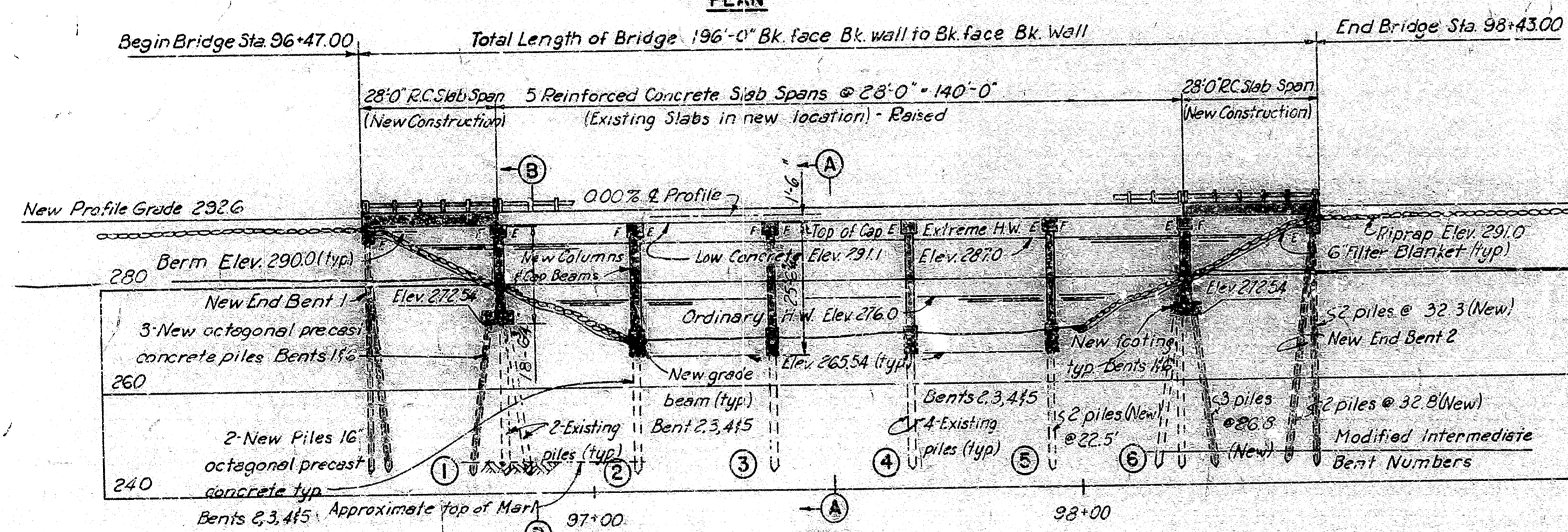
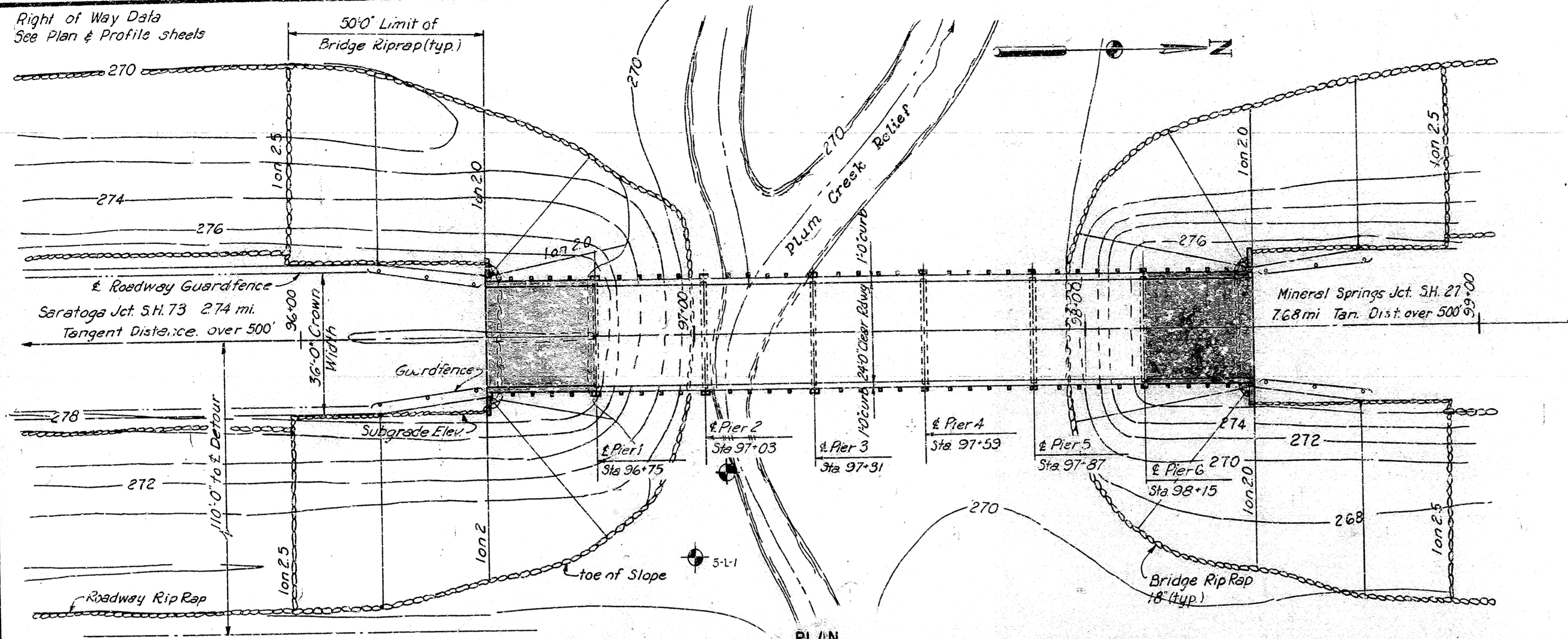




Clearing = 0.04 Acres
Grubbing = 0.02 Acres

| EARTHWORK | |
|----------------------------------|-------------|
| Sta. 122+20 to Sta. 125+00 | |
| Unclassified Excavation (Normal) | 1,128 C.Y. |
| Embankment Material (Normal) | 71,490 C.Y. |
| Embankment Material (Approaches) | 3,650 C.Y. |
| Embankment + 20 % | 76,268 C.Y. |
| Special Compaction of Earthwork | 76,268 C.Y. |





ELEVATION - EXISTING BRIDGE - PLUM CREEK RELIEF

GENERAL NOTES

Design Specifications: New Construction - AASHTO 1961

Unit Stresses:

Class S Concrete (n=10) 1,200 P.S.I.
Reinforcing Steel 20,000 P.S.I.

Design Loading: AASHTO H15-44

Specifications:

Arkansas State Highway Commission "Standard Specifications for Highway Construction," Edition of 1959, and designated Special Provisions.

All concrete shall be poured in the dry, exposed corners shall be chamfered 3/4" unless otherwise noted.

In general, construction joints shall be horizontal and shall be provided with keys not less than 1 1/2" high covering the middle third of both dimensions.

Piles to be added for intermediate bents shall be 18" octagonal precast concrete piles as used in existing structure and driven to approximately the same depths as original piles. All piling shall be driven with an approved air, steam or diesel hammer. Piles in new end bents shall be 18" octagonal precast concrete piles with a minimum bearing capacity of 30 tons per pile. Piles shall be driven after embankment is in place.

Lengths of piling shown are assumed for estimating quantities only. Order lengths shown cut-off or build-up if necessary shall be paid for in accordance with the Standard Specifications.

Borings indicate piles will meet refusal in Marl formation.

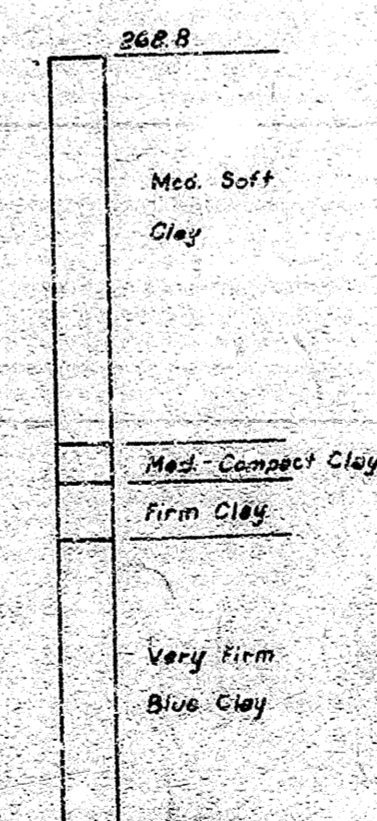
All concrete shall be air entrained.

Note:
For sections A-A & B-B see typical details sheet 12

SOILS NOTES

Numbers on the left of test borings indicate the number of blows of a 140 lb. hammer dropped 30" required to drive a 2" x standard split barrel 12". Penetration less than 12" is denoted by 70/6" (blows per penetration). Elevations to left of borings indicate top of firm Marl. The symbol (V) indicates water table at 24 hours unless another time is shown.

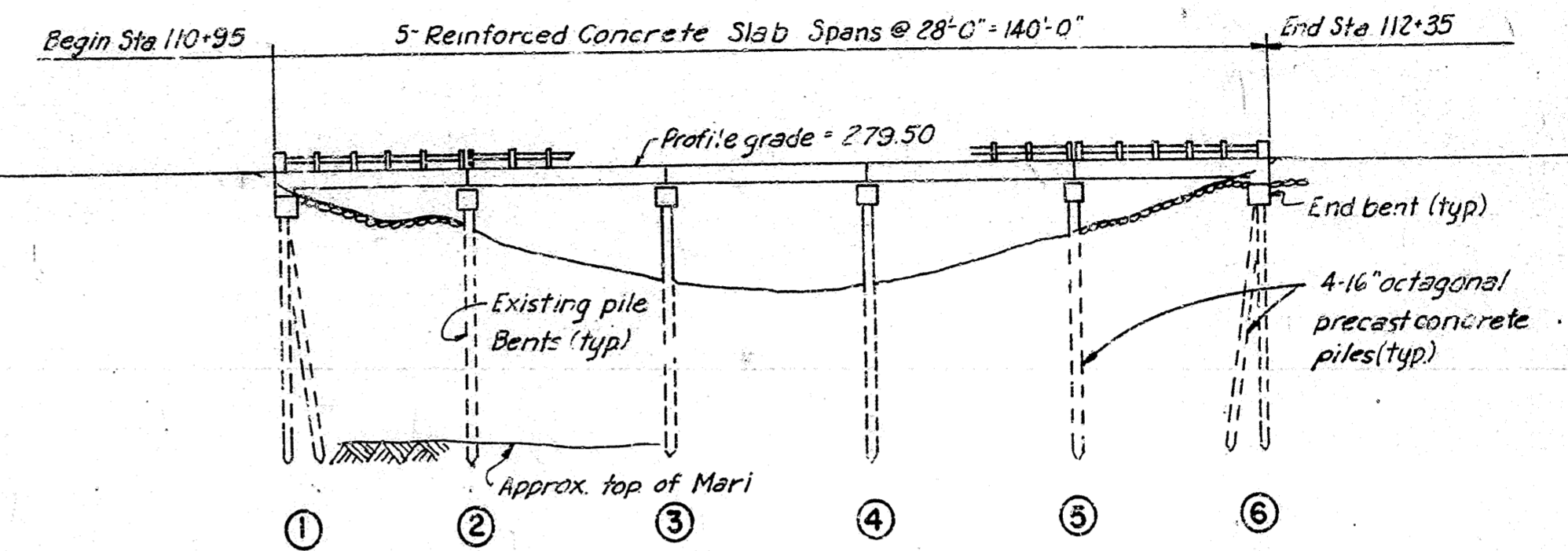
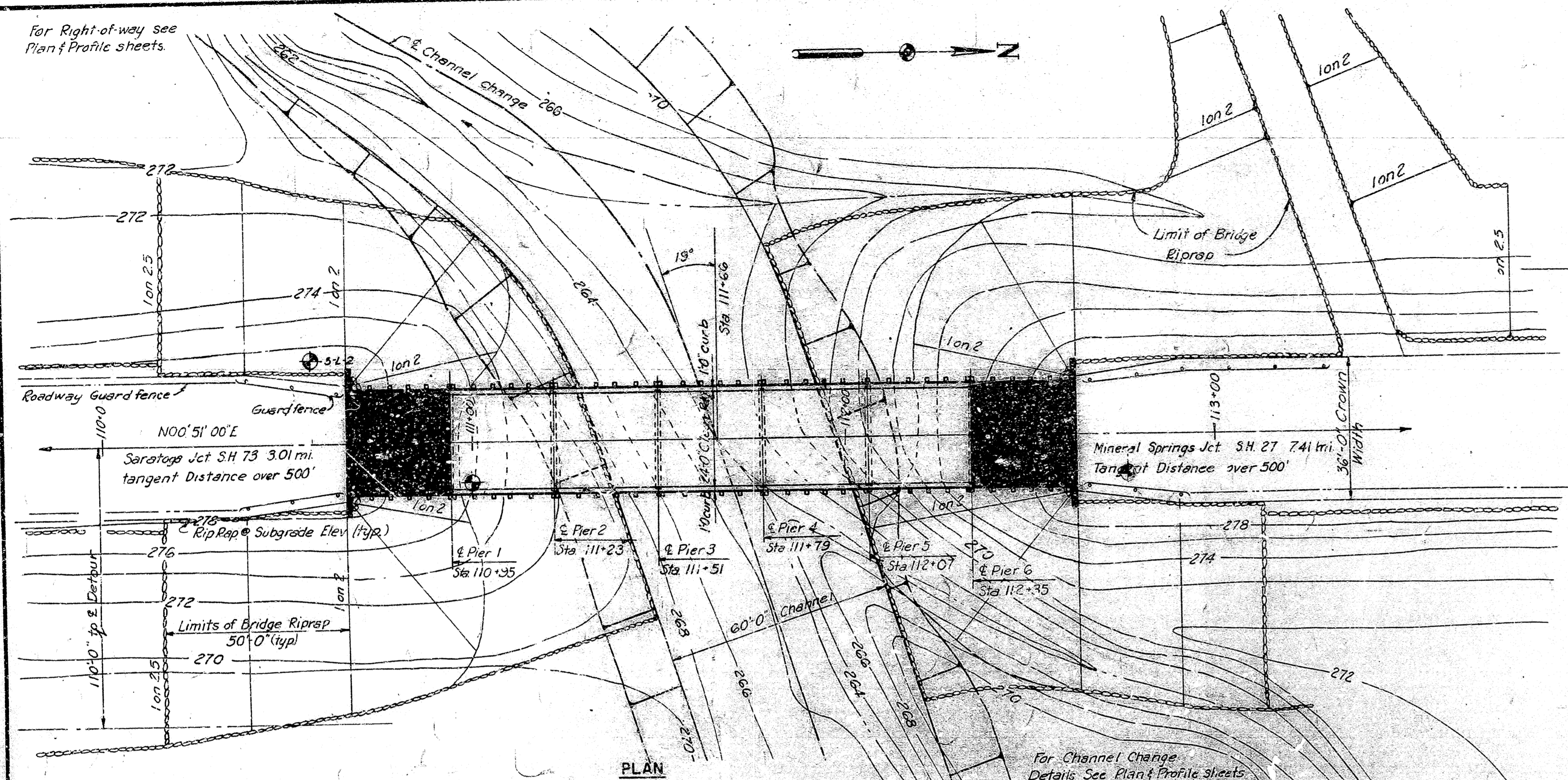
* Based on examination of the core samples and correlation with geological studies in area this formation is believed to be the Ozan formation, belonging to the Taylor Series of upper Cretaceous Deposits.

B.M. No. 5
Chisled square in center of curb on west side of bridge Sta. 97+40 Elev. 280.42Bore Boring (1964)
35' Rt. Sta. 97+08HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS

BRIDGE ENGINEER

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK ARKANSAS
MILLWOOD RESERVOIR CROSSING
STATE HIGHWAY 355
LAYOUT OF MODIFIED BRIDGE OVER PLUM CREEK RELIEF
PROFILE OF BORINGS

DRAWN BY RPY DATE 12-20-42
TRACED BY DATE
BRIDGE NO. 2925A
CHECKED BY DATE 12-20-42
SCALE 1" = 20'
DRAWING NO. 12543

For Right-of-way see
Plan & Profile sheets.

ELEVATION - EXISTING BRIDGE - PLUM CREEK

GENERAL NOTES

Design Specifications: New Construction - AASHTO 1961

Unit Stresses:
 Class S Concrete (n=10) 1,200 PSI
 Reinforcing Steel 20,000 PSI

Design Loading: AASHTO H15-44

Specifications:
 Arkansas State Highway Commission "Standard
 Specifications for Highway Construction,"
 Edition of 1959, and designated Special
 Provisions.

All concrete shall be poured in the dry, exposed corners
 shall be chamfered 3/4" unless otherwise noted.

In general, construction joints shall be horizontal and
 shall be provided with keys not less than 1 1/2" high covering
 the middle third of both dimensions.

Piles to be added for intermediate bents shall be 16"
 octagonal precast concrete piles as used in existing
 structure and driven to approximately the same depths as
 original piles. All piling shall be driven with an approved
 air, steam or diesel hammer. Piles in new end bents shall
 be 16" octagonal precast concrete piles with a minimum
 bearing capacity of 30 tons per pile. Piles shall be driven
 after embankment is in place.

Lengths of piling shown are assumed for estimating
 quantities only. Order lengths shown cut-off or build-up
 if necessary shall be paid for in accordance with the
 Standard Specifications.

Borings indicate piles will meet refusal in Marl formation.

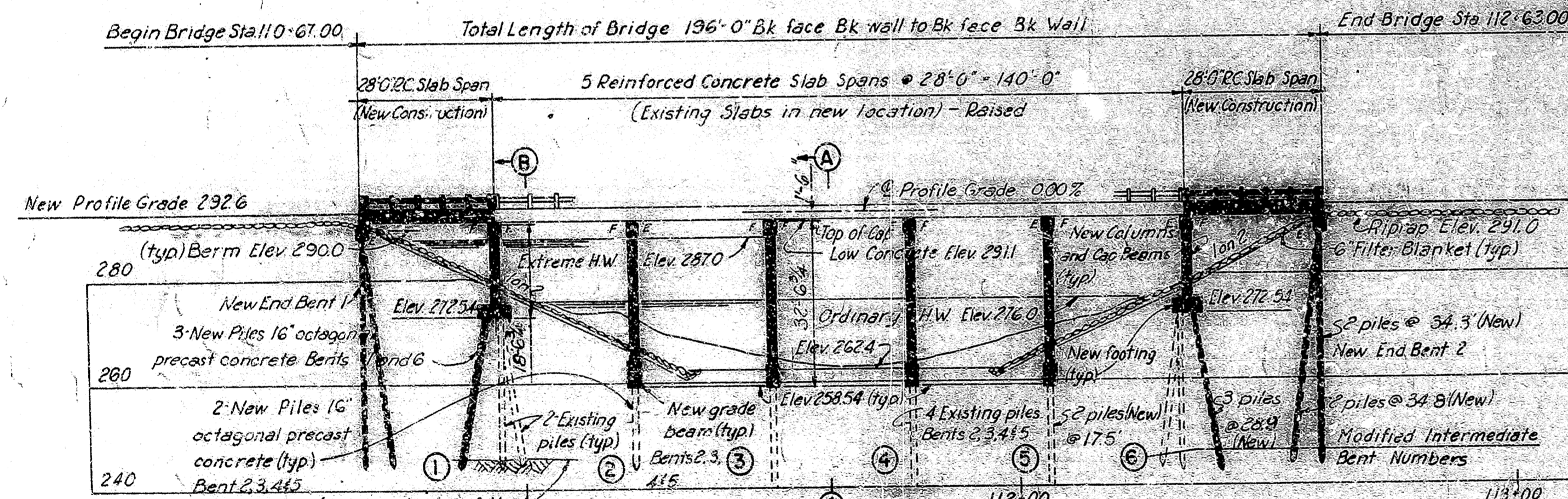
All concrete shall air entrained.

SOILS NOTES

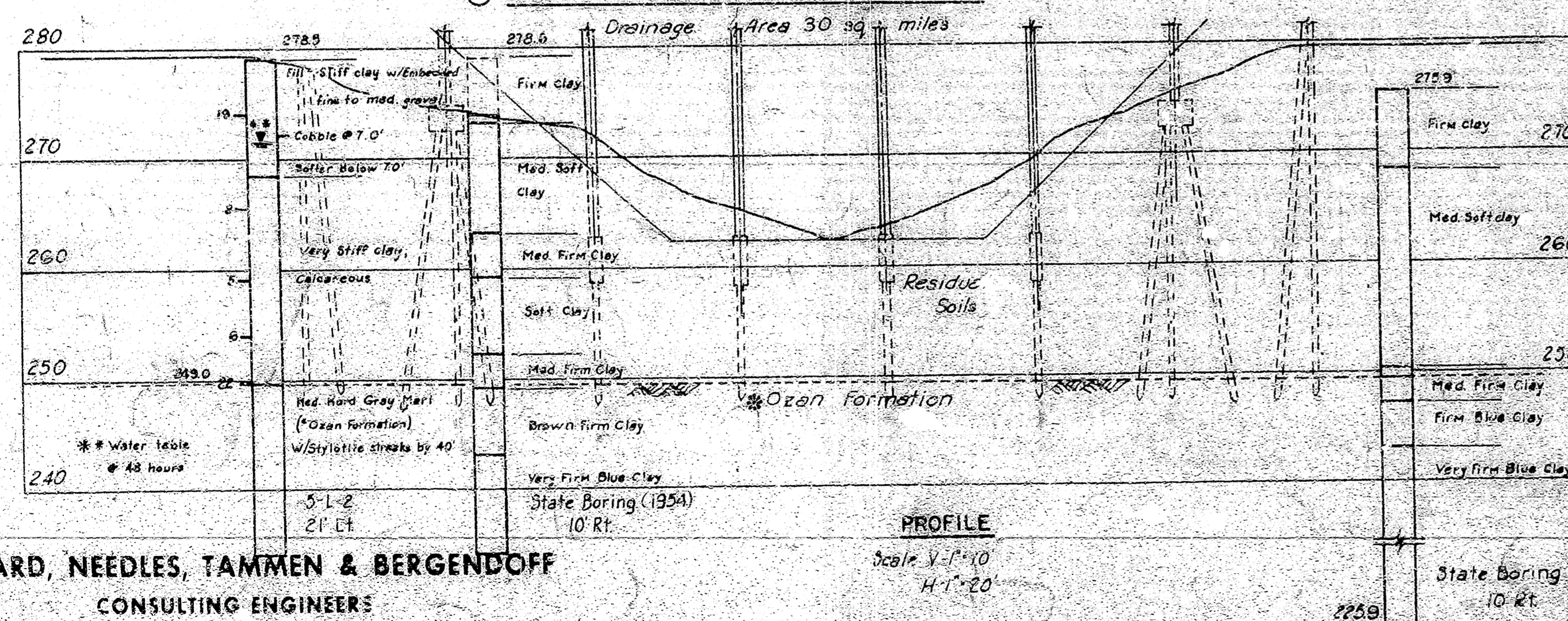
Numbers on the left of test borings indicate the
 number of blows of a 140 lb. hammer dropped 30" required
 to drive a 2" standard split barrel 12". Penetration
 less than 12" is denoted by 10/6" (blows per penetration).
 Elevations to left of borings indicate top of firm Marl.
 The symbol (V) indicates water table at 24 hours unless
 another time is shown.

* Based on examination of the core samples and
 correlation with geological studies in area this formation
 is believed to be the Ozon formation, belonging to the
 Taylor Series of upper Cretaceous Deposits.

B.M. No. 4
 Chisled square in center of curb on west side of bridge
 Sta. 111+60 - Elev. +280.40



ELEVATION - MODIFIED BRIDGE - PLUM CREEK



PROFILE

Scale: V 1"=10'
 H 1"=20'

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
 CONSULTING ENGINEERS

BRIDGE ENGINEER

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARKANSAS

MILLWOOD RESERVOIR CROSSING

STATE HIGHWAY 395

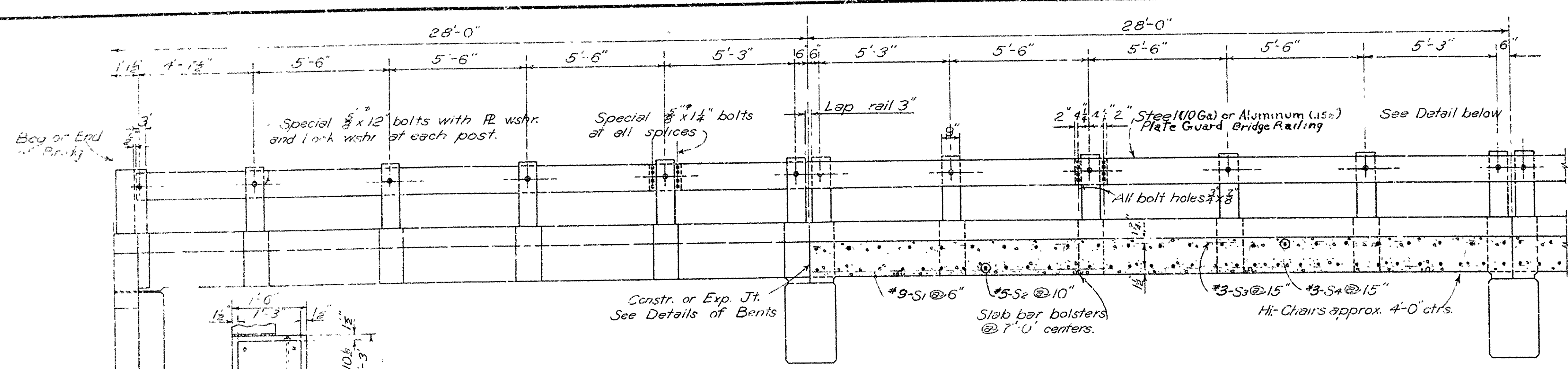
LAYOUT OF MODIFIED BRIDGE OVER PLUM CREEK
PROFILE OF BORINGS

DRAWN BY: JCV DATE: 12-22-62
 TRACED BY: DATE: 1-1-63

BRIDGE NO. 2927A

CHECKED: BEM DATE: 1-3-63
 SCALE: 1"=20'
 DRAWING NO. 12549

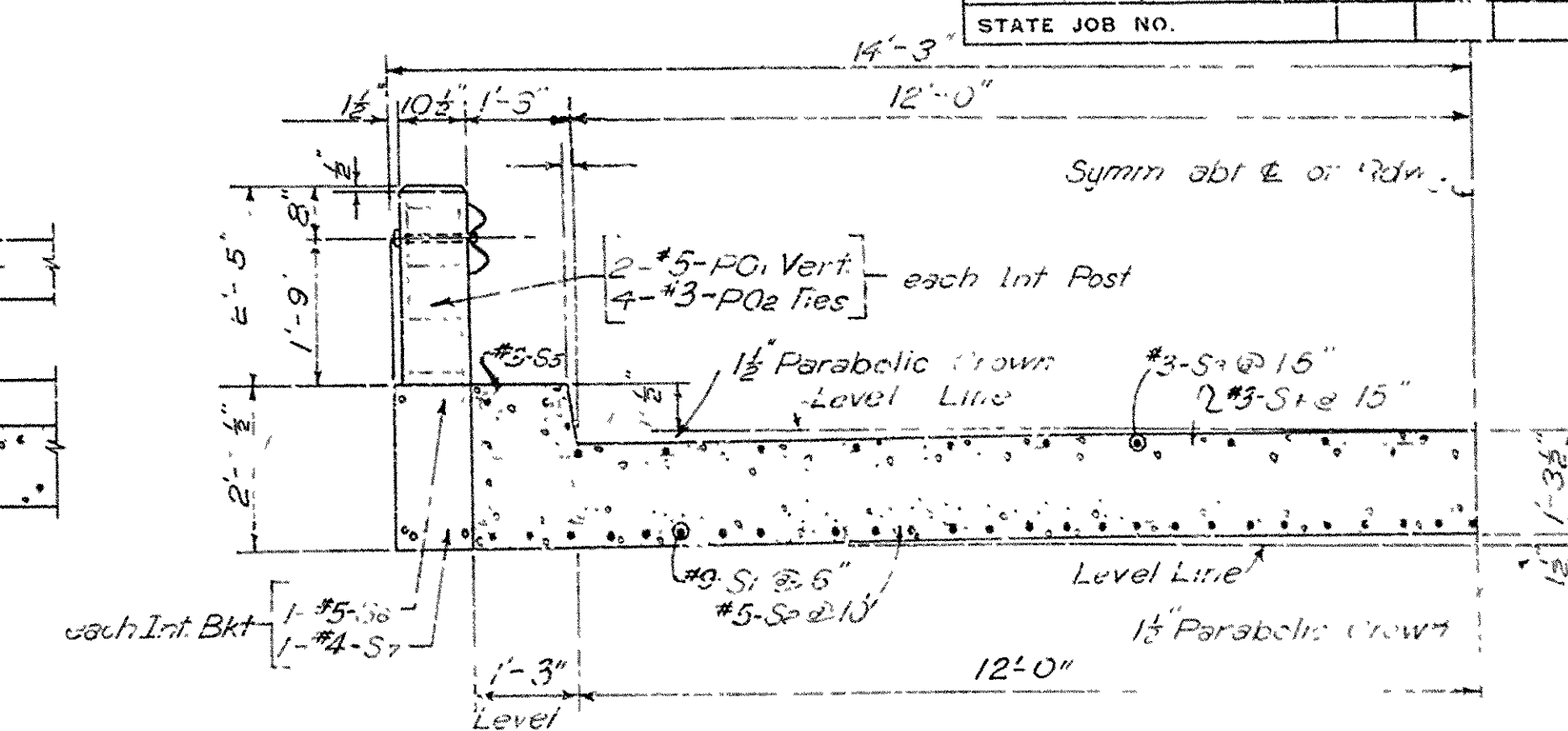
| FILE NO. | STATE | PROJECT NO. | SHEET NO. | TOTAL SHEETS |
|---------------|-------|-------------|-----------|--------------|
| 6 | ARK | | | |
| STATE JOB NO. | | | | |



ELEVATION

SECTION ON C OF RDWY

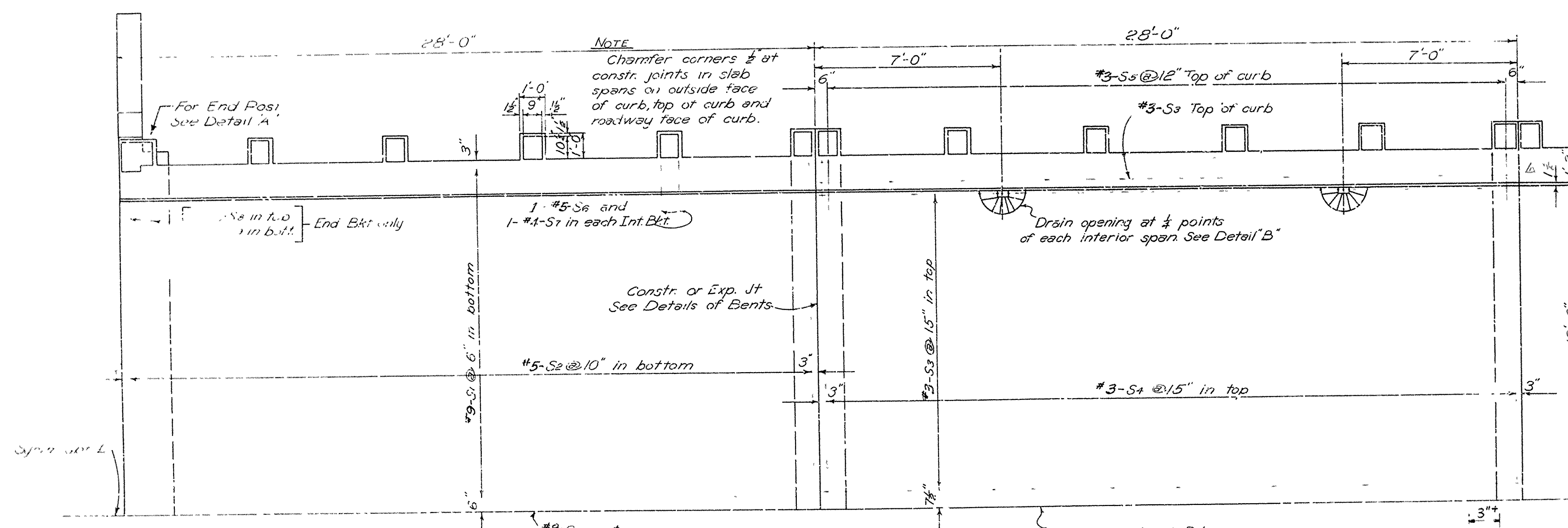
SCALE: 3/8" = 1'-0"



TYPICAL CROSS SECTION

SCALE: 3/8" = 1'-0"

DETAIL A
SCALE: 3/8" = 1'-0"



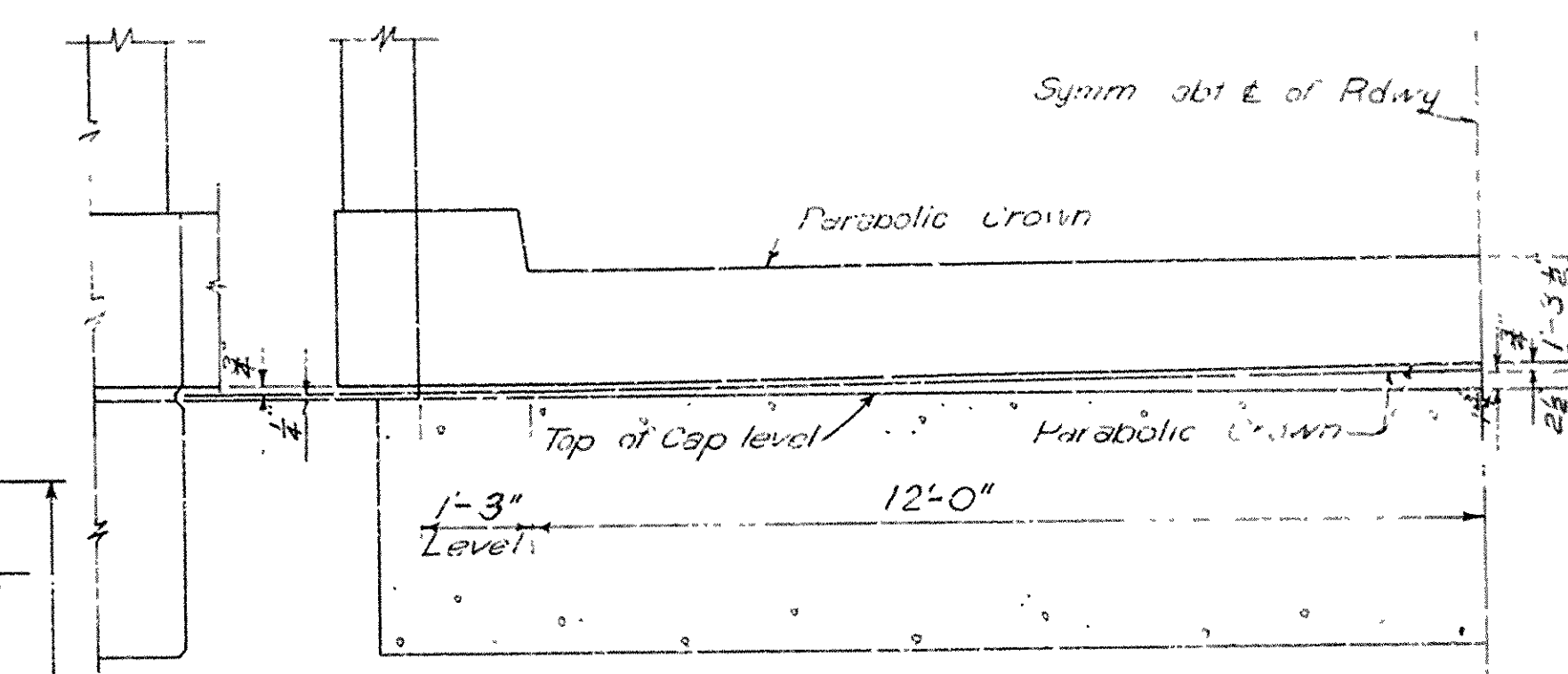
HALF PLAN END SPAN

HALF PLAN INTERMEDIATE SPAN

SHOWING STEEL IN BOTTOM OF SLAB
TOP SLAB STEEL SAME AS SHOWN FOR INT. SPAN

SHOWING STEEL IN TOP OF SLAB
BOT. SLAB STEEL SAME AS SHOWN FOR END SPAN

SCALE: 3/8" = 1'-0"



SECTION AT BENT

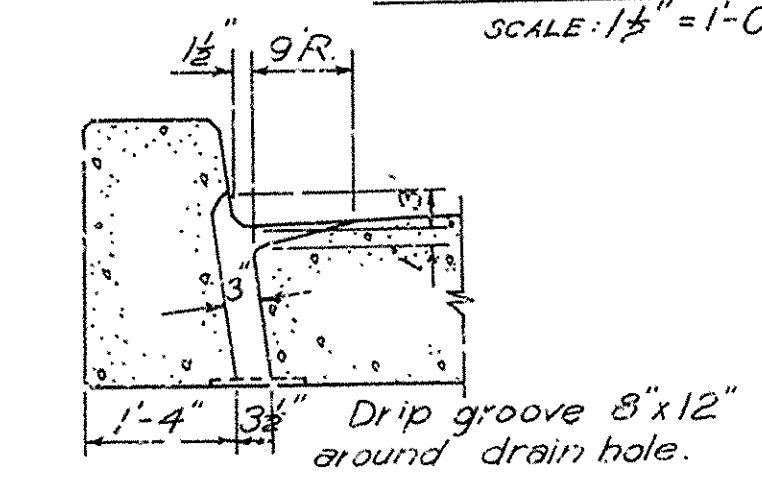
SHOWING HOW THICKNESS OF PARABOLIC SLAB IS INCREASED AT BENT TO MEET LEVEL CAP.
SCALE: 3/8" = 1'-0"

LIST OF REINFORCING STEEL

| MARK | SIZE | LENGTH | BENDING DIAGRAM |
|------|------|--------|-----------------|
| S1 | #9 | 27'-8" | |
| S2 | #5 | 26'-2" | |
| S3 | #3 | 27'-8" | |
| S4 | #3 | 26'-2" | |
| S5 | #3 | 5'-10" | |
| S6 | #5 | 10'-2" | |
| S7 | #4 | 6'-7" | |
| S8 | #5 | 2'-7" | |
| S9 | #4 | 3'-6" | |
| PO1 | #5 | 9'-1" | |
| PO2 | #3 | 2'-10" | |
| PO3 | #3 | 4'-4" | |
| PO4 | #5 | 4'-3" | |

SECT. OF GUARD RAIL

SCALE: 1/2" = 1'-0"



DETAIL B SECTION THRU DRAIN OPENING

SCALE: 3/8" = 1'-0"

Openings to taper from 3' x 6' at top of slab to 3' x 7' at bottom. Set entrance to openings low and trowel out slab to meet.

GENERAL NOTES

All concrete to be Class "S". All exposed corners to be chamfered 3/4" unless otherwise noted. Reinforcing steel to be deformed bars of intermediate or hard grade. An reinforcing steel shall be accurately located in the forms and firmly held in place by means of steel wire supports sufficient in number and size to prevent displacement during the course of construction and to keep the steel a proper distance from the forms. The wire supports will not be paid for directly but will be considered subsidiary to the item of Reinforcing Steel. Shop lists and bending diagrams of reinforcing steel including wire supports shall be submitted and approved secured before fabrication is begun.

Roofing and bituminous felt shall be measured and paid for as Class S Concrete. The steel plate guard rail shall be of the type shown or an equivalent rigid type as approved by the Engineer. The steel plate guard rail including post, and fastenings, shall be paid for at the unit price bid per linear foot for Steel or Aluminum Plate Guard Bridge Railing.

SPECIFICATIONS Arkansas State Highway Commission Standard Specifications for Highway Construction, adopted Edition - 1957

H 15 LOADING (A.A.S.H.O. 1957 REVISED)

LOAD DISTRIBUTION TO SLAB:
Dead Load = 209 #/ft.
Live Load = 0.182 Wheel/ft. width
Impact = 30%

OR LANE LOADS

Uniform Load = 436 #/ft.
Concentrated LL = 1227 #
Impact = 30%

UNIT STRESSES

Class "S" Concrete (n=10) 1200 #/ft.
Reinforcing Steel 20,000 #/ft.

Revisions:
Add 4' 2'-2 1/2" to S5 W.W.M. 5-26-54
Changed S2 to straight bar W.W.M. 11-1-54
Changed note for payment of Bituminous and Roofing felt F.R.B. 5-4-56
Changed bar designation and roadway to gutter line. W.W.M. 11-7-57
Steel Plate Guard splices; Notes for reinforcing steel and Bridge Railing; Design Loading (1957). L.H.T. 9-15-59
Revised Guard Rail Note J.M.H. 7-15-60

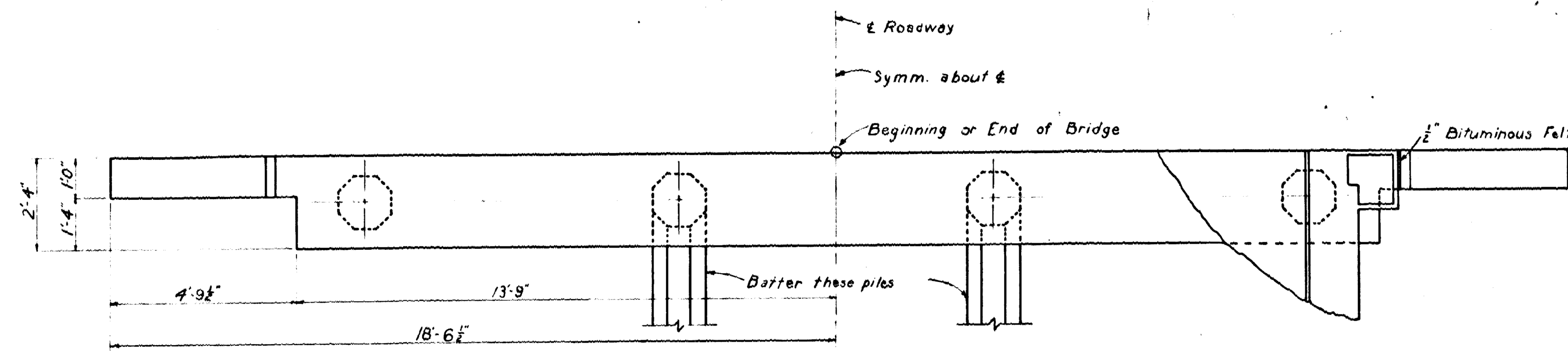
DETAILS OF STANDARD 28'-0" R.C. SLAB SPAN

24'-0" CLEAR RDWY. 1'-0" CURBS

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

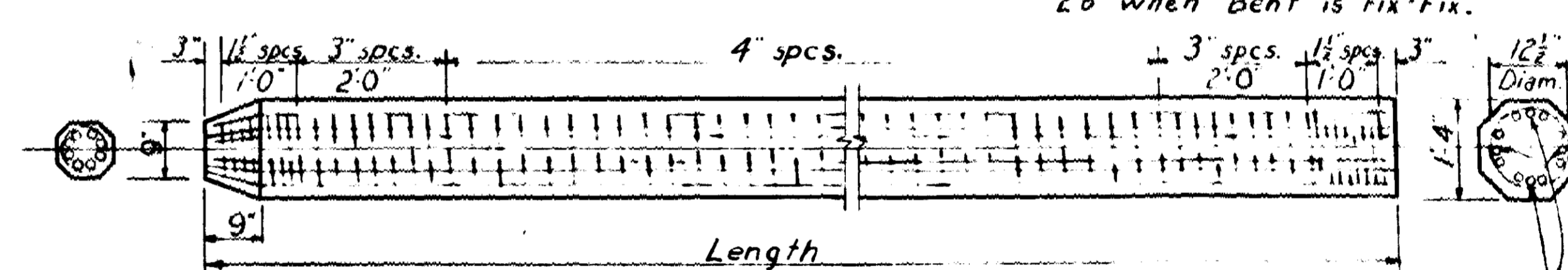
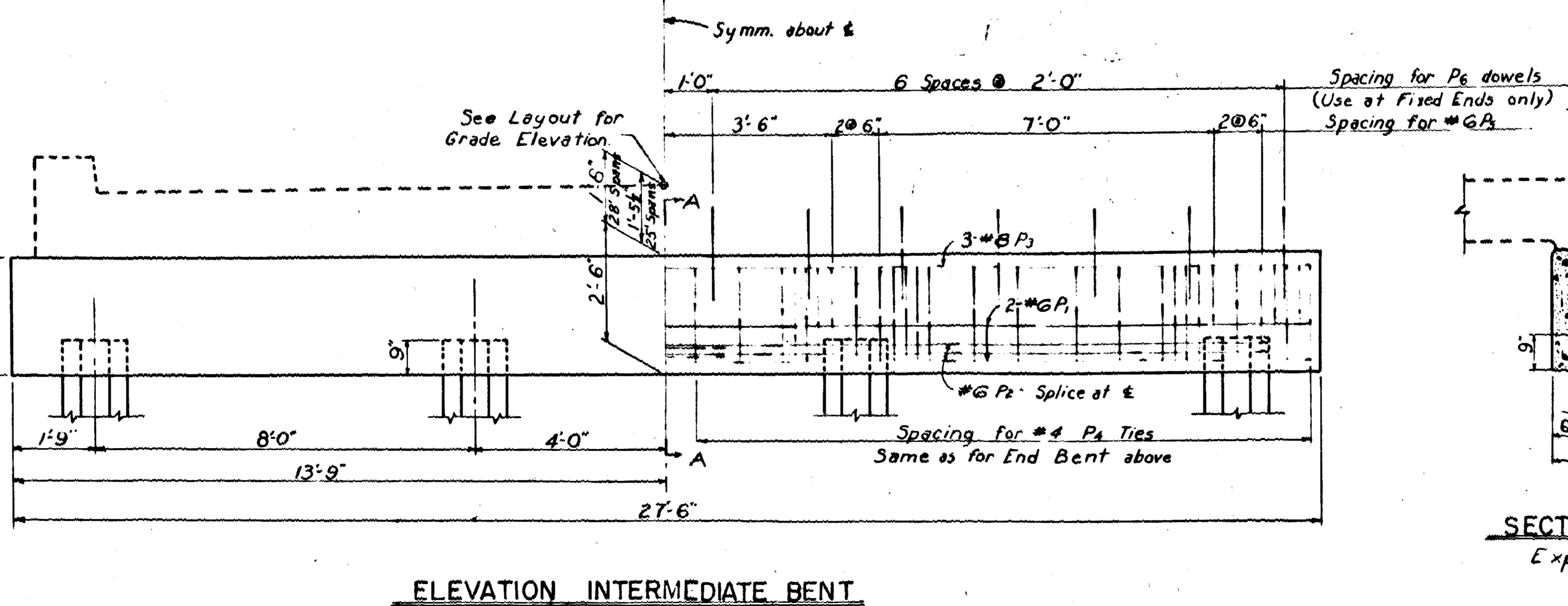
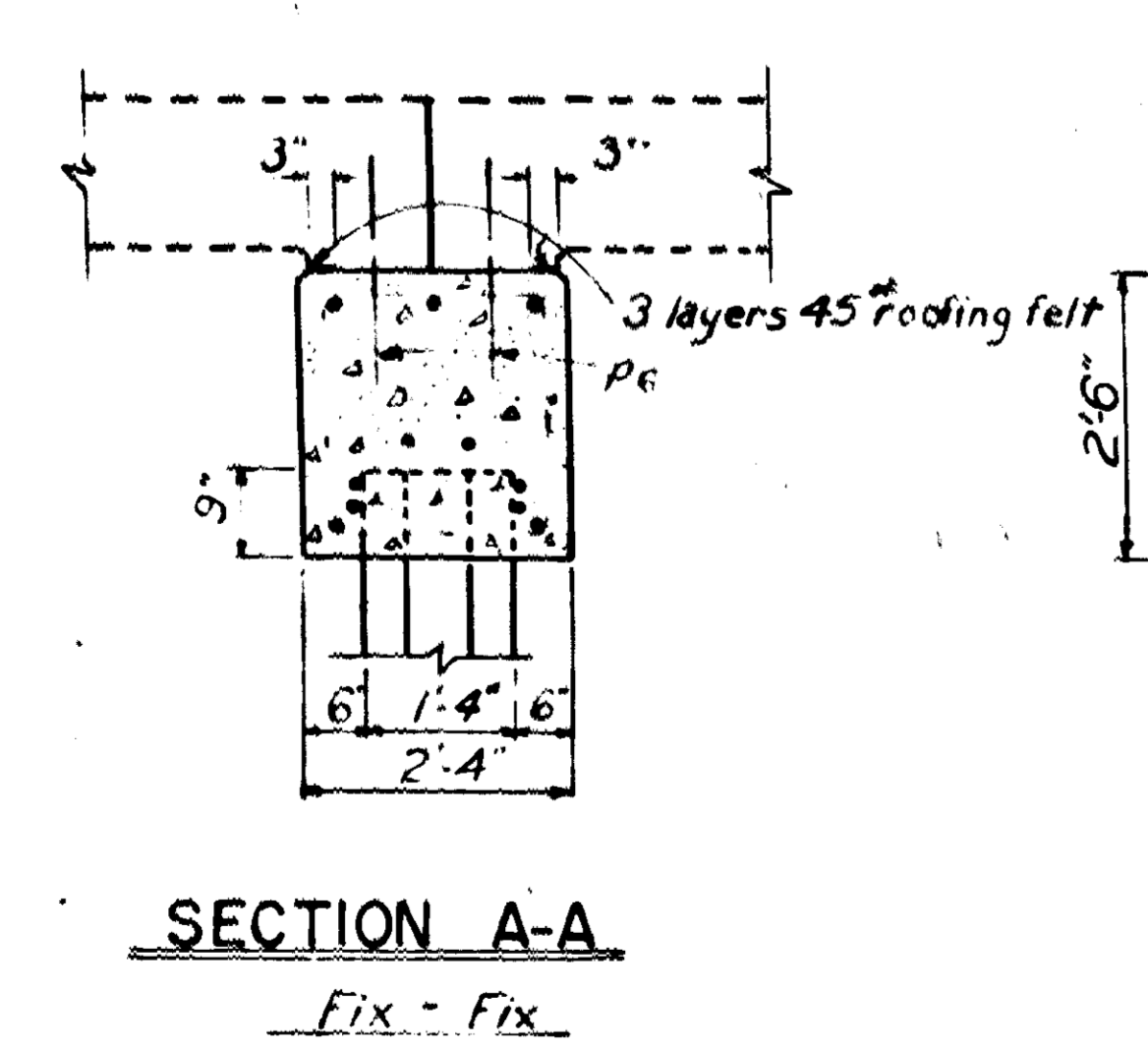
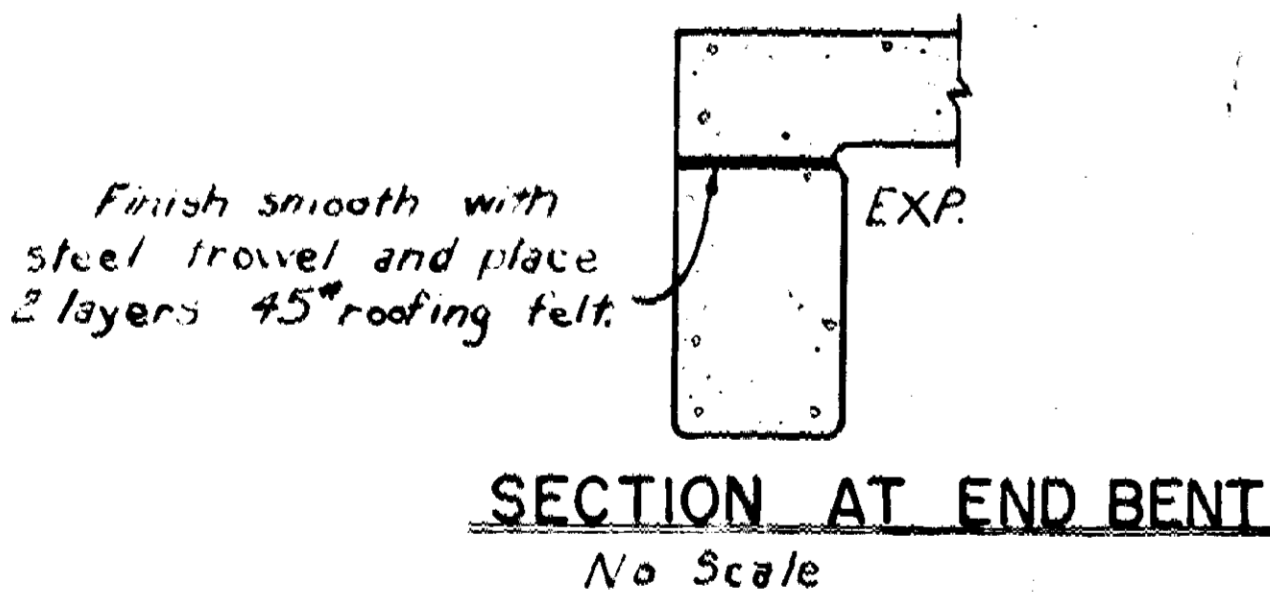
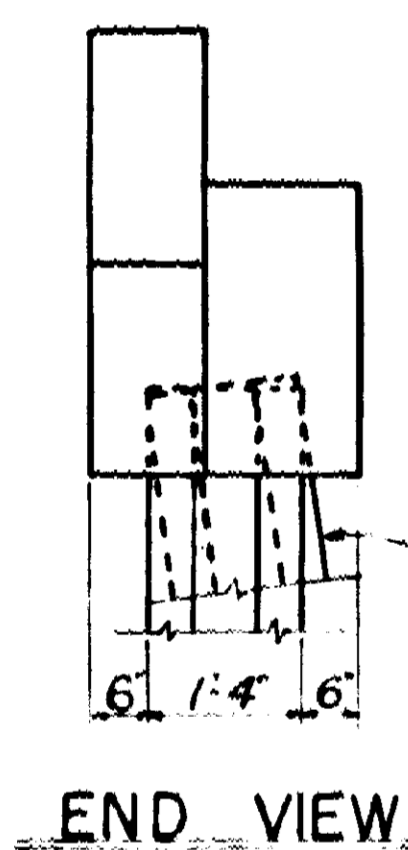
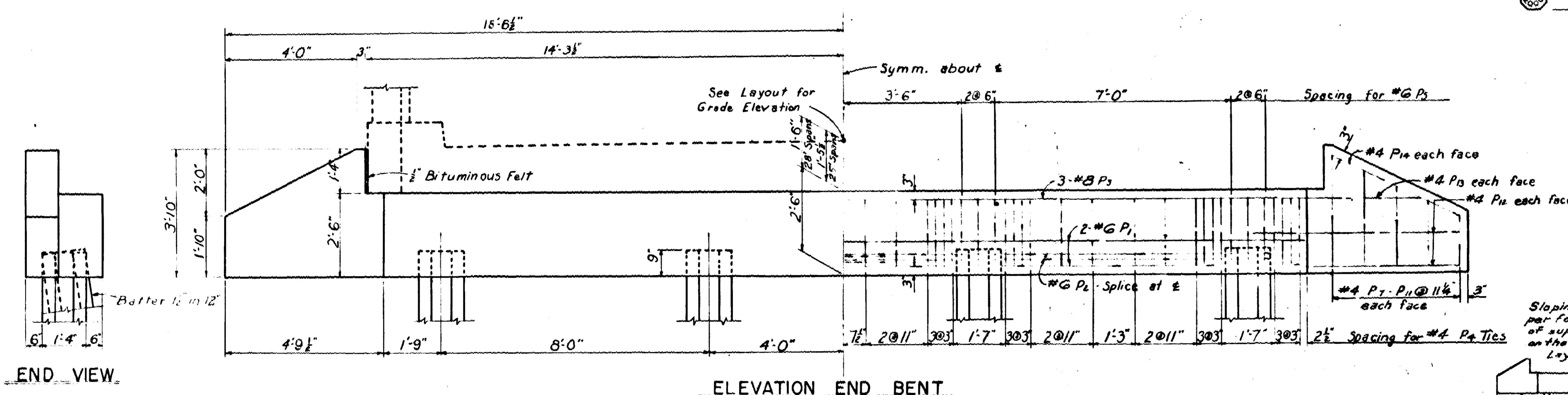
Drawn By: W.W.M. Date: 5-5-52
Traced By: L.W.H. Date: 6-15-55
Checked By: J.M.H. Date: 7-15-60
BRIDGE NO. DRAWING NO. 5492

| FEED ROAD DIST NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|--------------------|-------|-------------|-------------|-----------|--------------|
| 6 | ARK. | | | | |
| STATE JOB NO. | | | | | |

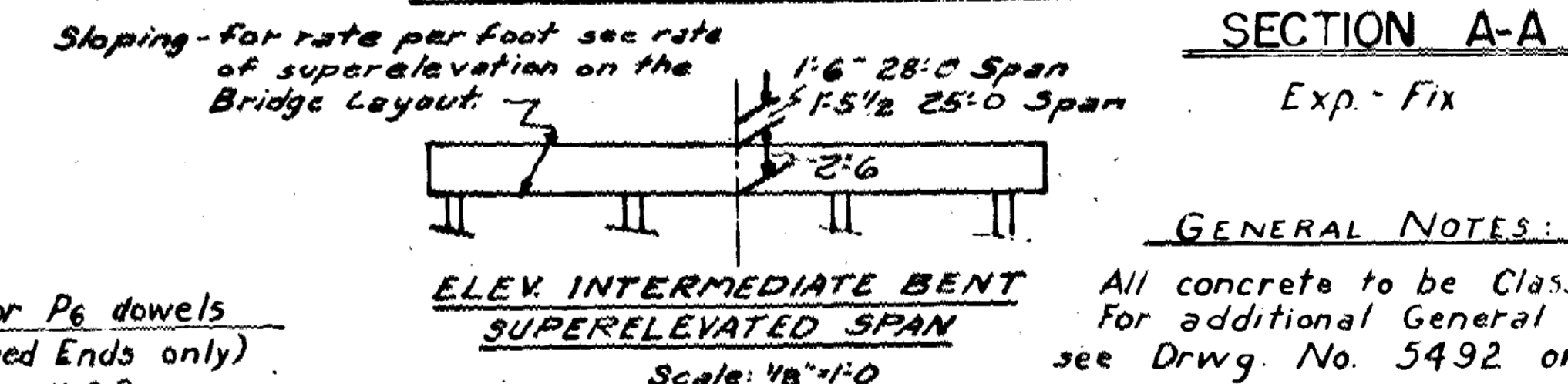
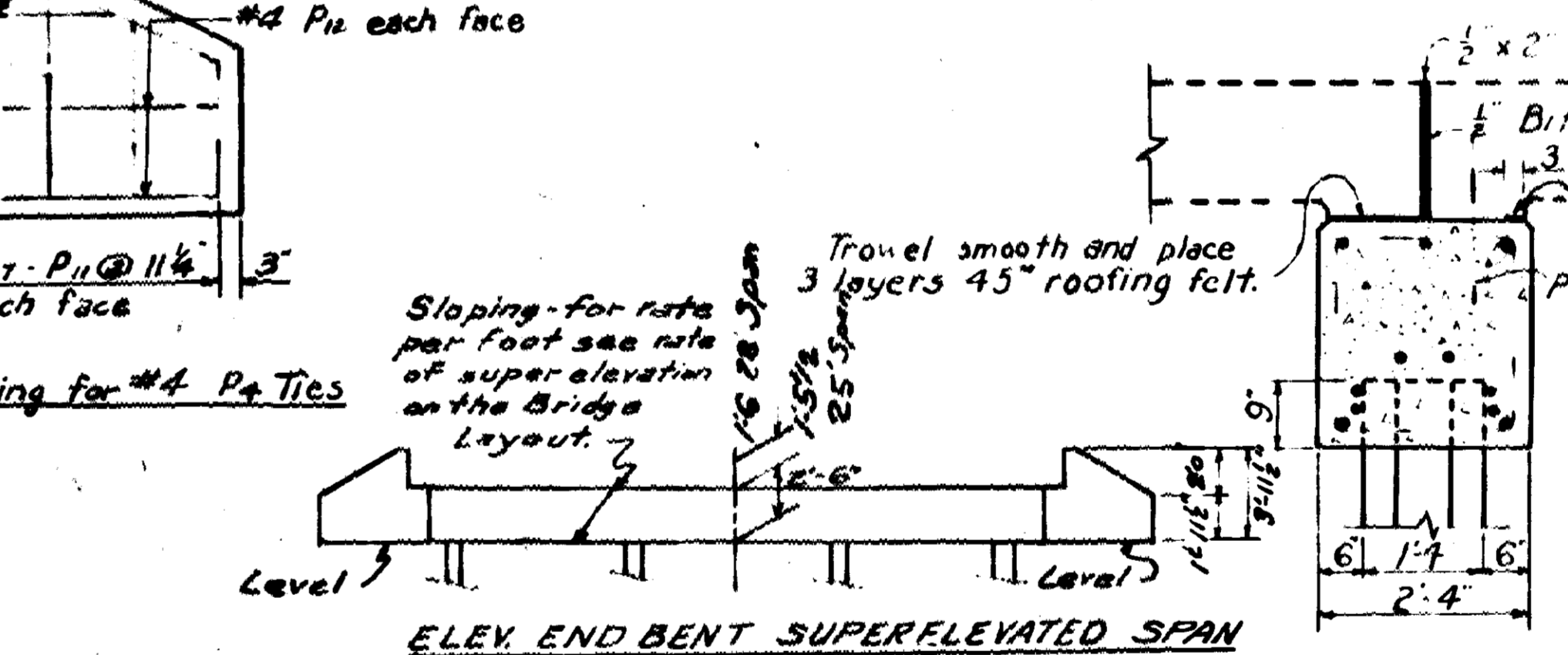


| BENT BARS | | | | | | | | |
|-----------------------|---------------------------|----------------|------|--------|-----------|------------|-----------------|--|
| NO. IN END BENT | NO. IN INTERM. BENT | MARK | SIZE | LENGTH | A | B | BENDING DIAGRAM | |
| 4 | 4 | P ₁ | #6 | 29'3" | 14'-0" | 1'-5" | | |
| 44 | 44 | P ₂ | #4 | 8'-9" | 2'-1 1/2" | 1'-11 1/2" | | |
| 12 | 12 | P ₃ | #6 | 6'-1" | 2'-1 1/2" | 1'-11 1/2" | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

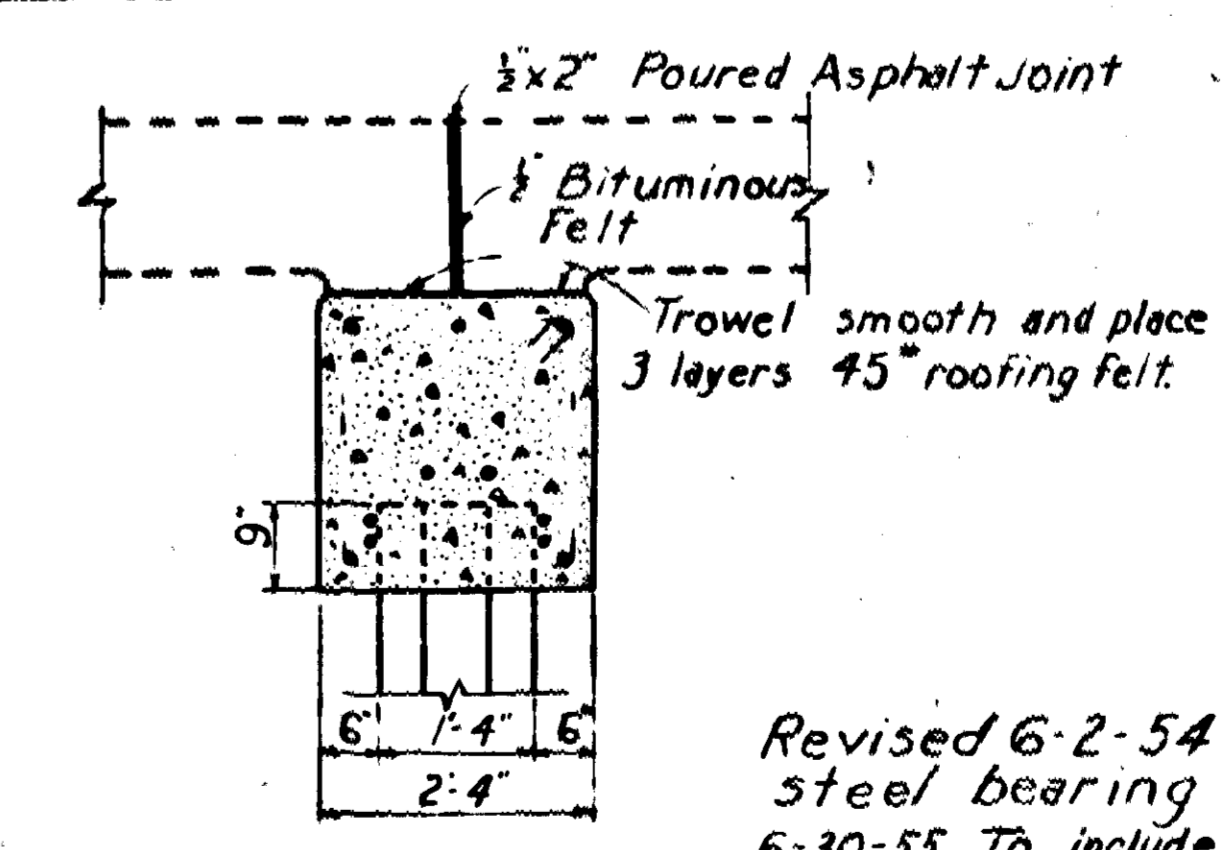
Dimensions are to centers of bars



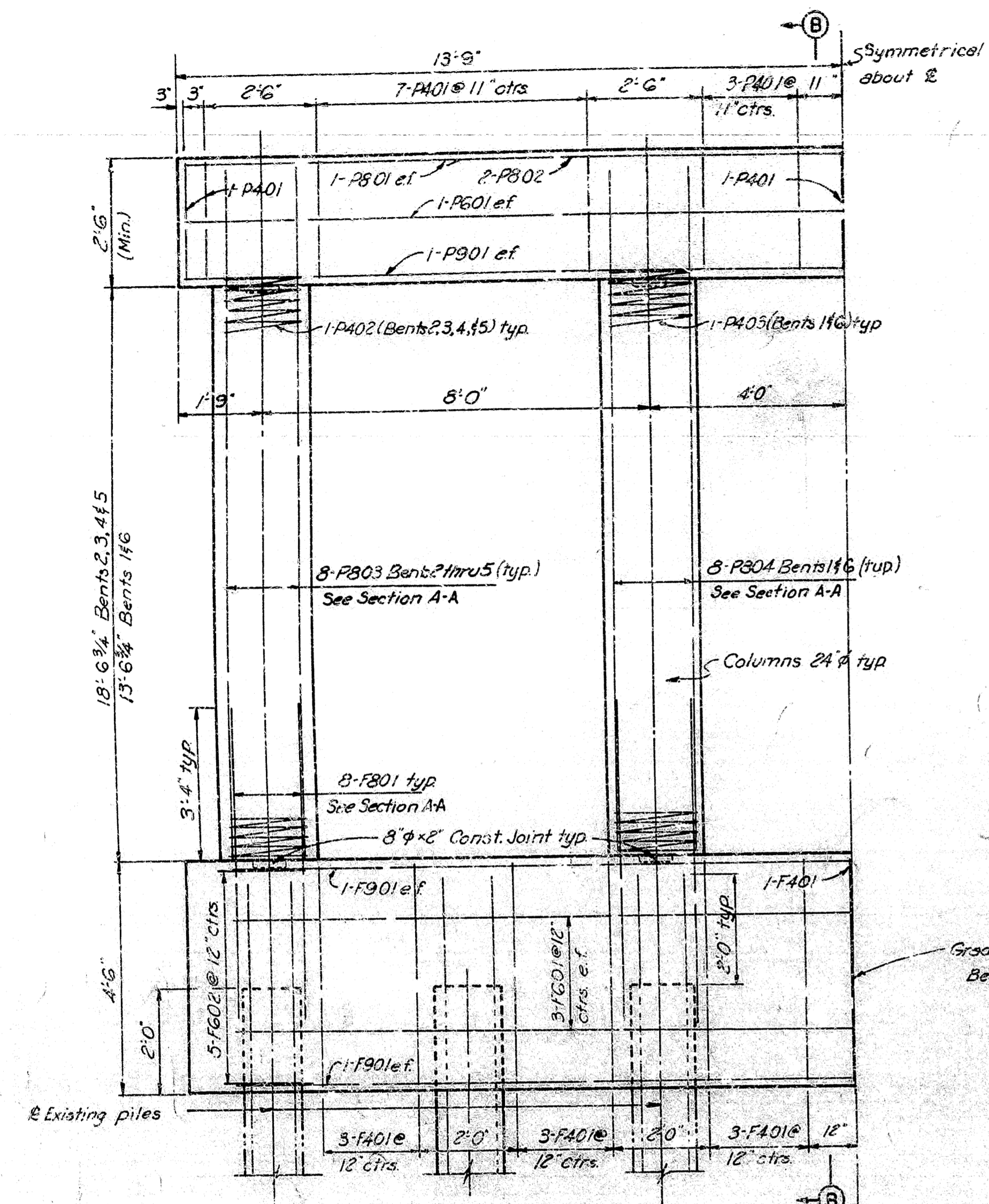
Reinforcing: Vertical Bars { 8-#6 Lengths to 35' } #2 Spiral
 For lengths over 45' add 4-#6 thru middle third of pile.
 Drive piles in Intermediate Bents to a minimum bearing of 32 kips per pile.
 Drive piles in End Bents to a minimum bearing of 30 tons per pile.
 Use steel bearing piles when called for on layout.



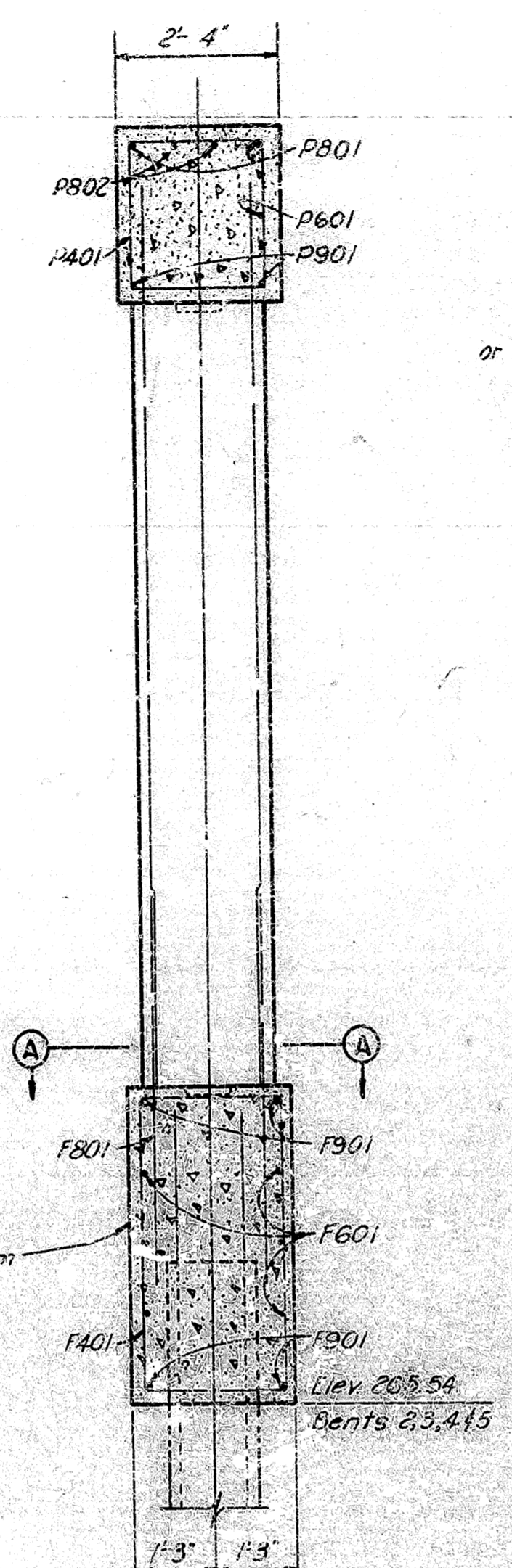
GENERAL NOTES:
 All concrete to be Class "5" and to be poured in the dry for additional General Notes and details of slab spans see Drwg. No. 5492 or 5463.
 Revised to show Super-elevated Caps E.R.B. 7-18-59



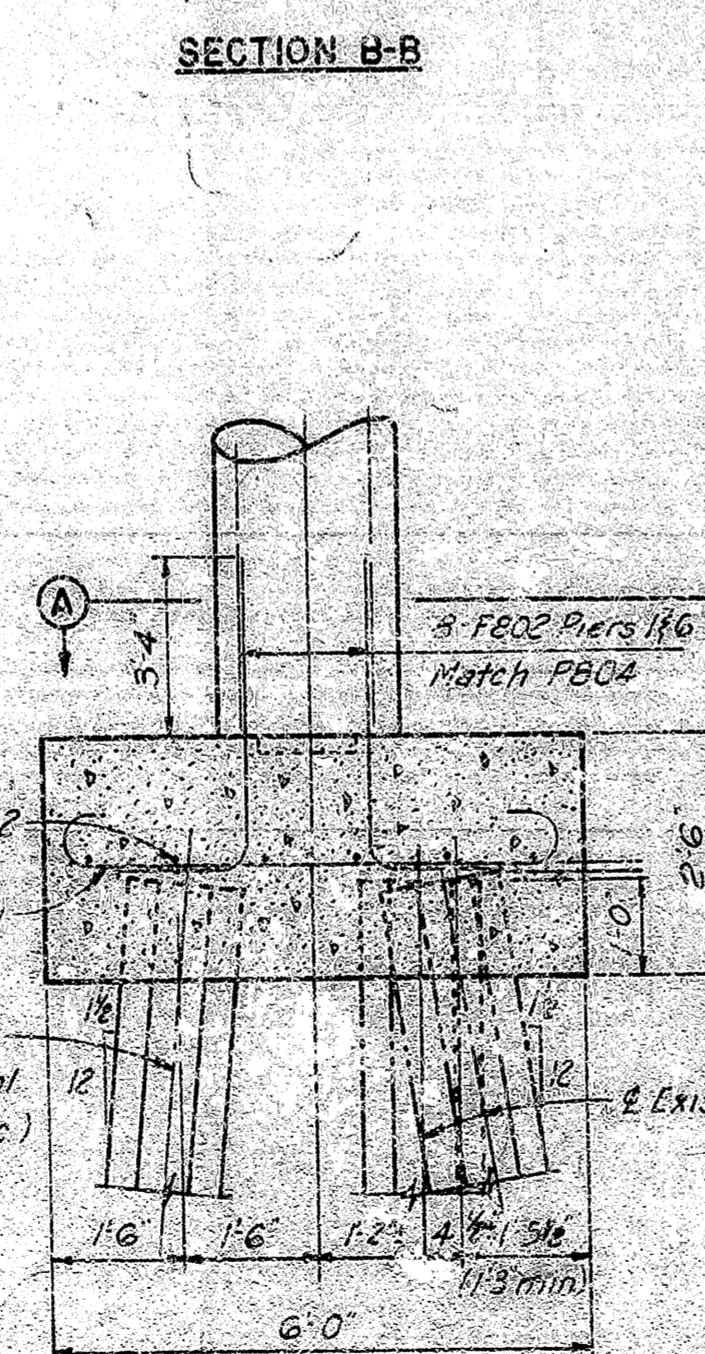
DETAILS OF STANDARD R.C. PILE BENTS FOR 25'-0" & 28'-0" R.C. SLAB SPANS
 Revised 6-2-54 To include steel bearing piling, L.P.C.
 6-30-55 To include 25'-0" spans, W.R.
 2-17-59 To show new reinforcing bar designations, R.L.C.
 24'-0" CLEAR RDWY. → 1'-0" CURBS
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
 Drawn By: A.R. Date: 6-3-53
 Traced By: A.E.C. Date: 6-15-55
 Checked By: W.W.M. Date: 8-10-55
 Scale: 1/2" = 1'-0"
 DRAWING NO. 5492-A



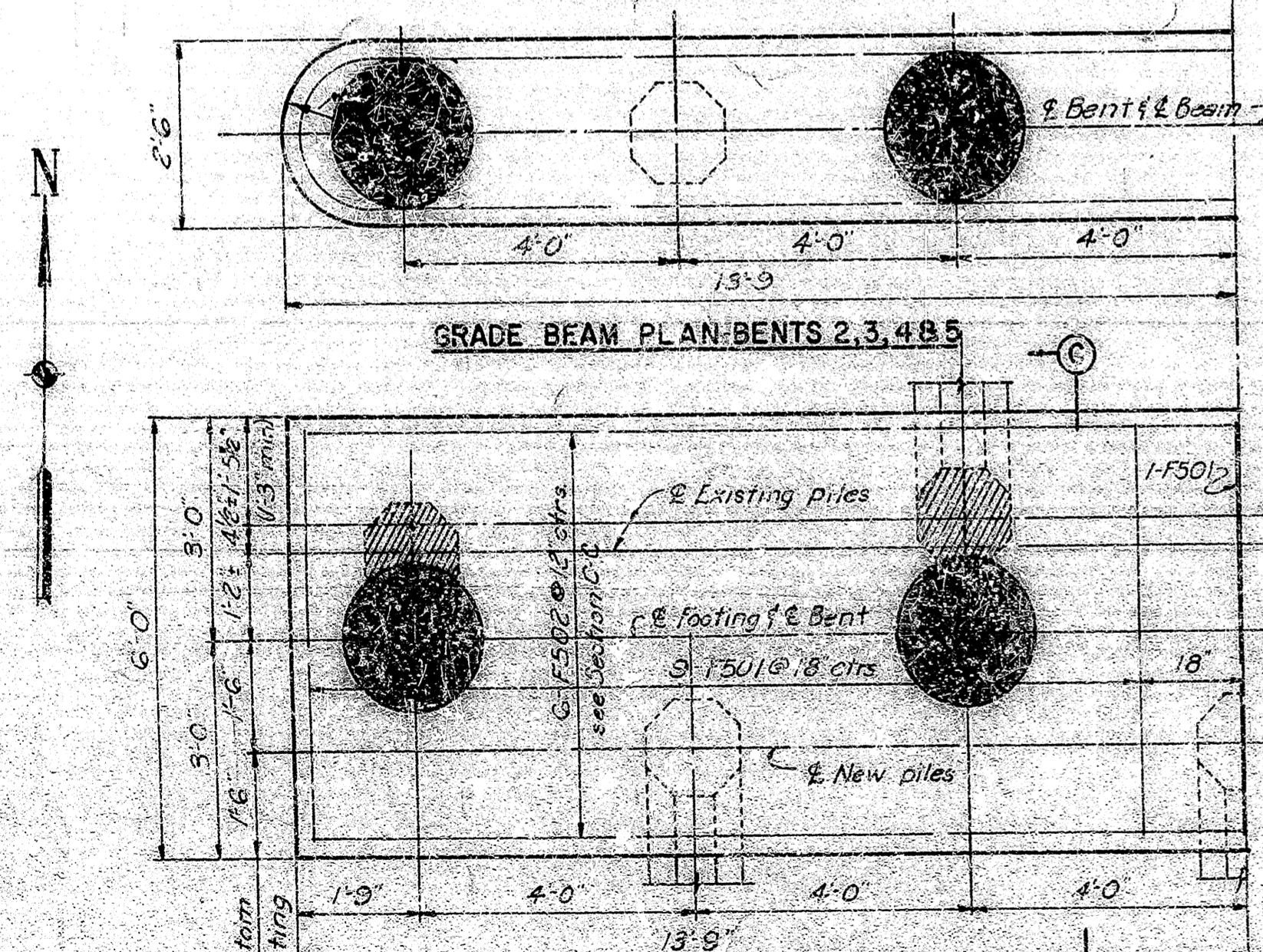
HALF BENT ELEVATION
(Bents 2, 3, 4 & 5 shown)



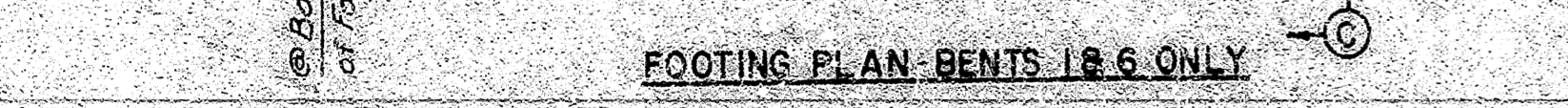
SECTION A-A
Scale 1"=1'-0"



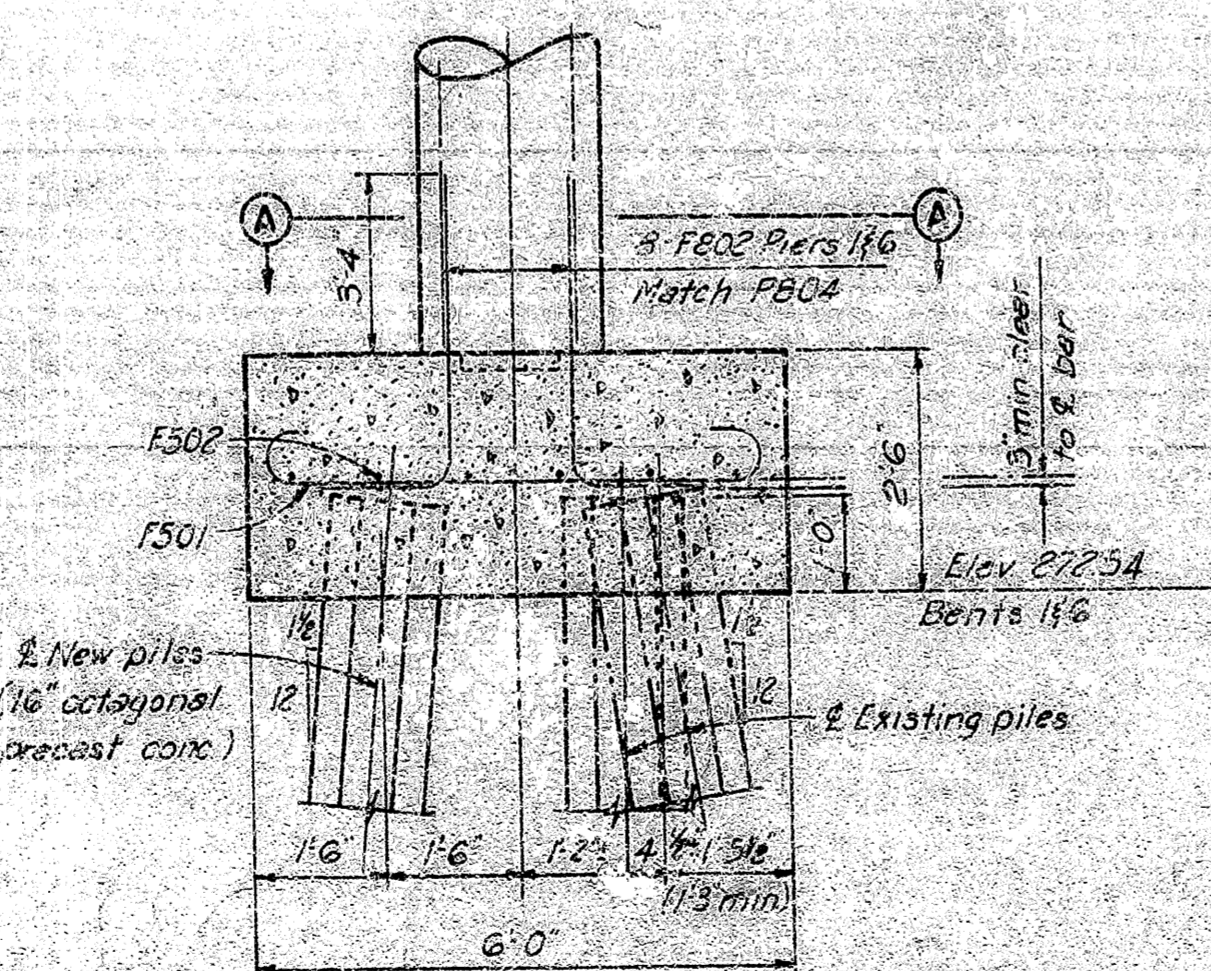
SECTION B-B



GRADE BEAM PLAN-BENTS 2, 3, 4 & 5



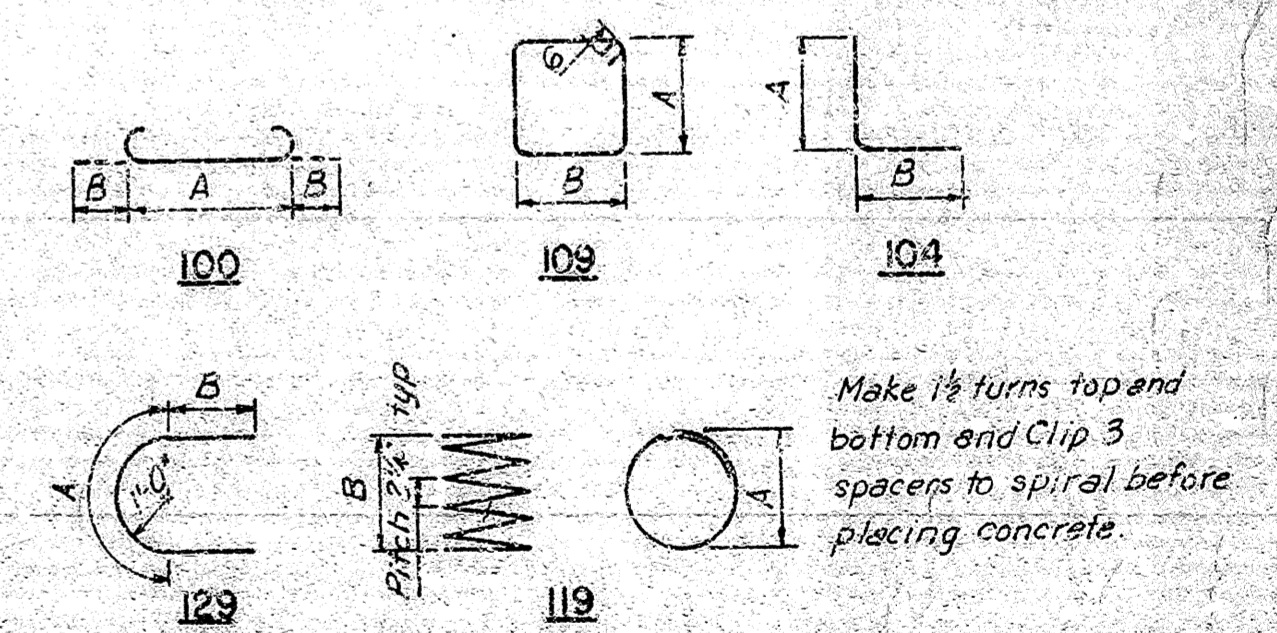
FOOTINGS PLAN-BENTS 1 & 6 ONLY



SECTION C-C

Notes:
Bents 2 thru 5 shown in Elevation; Bents 1 & 6 similar except for footing details, see footing plan Bents 1 & 6.
For stations of 2 of Bents see Layout sheet 7.
For Construction Sequence and Typical Sections see "Typical Details" sheet 12.
Use Class 5 Concrete (fc = 3000 psi.) for Bents, Grade Beams, or Footings.
All Existing piles are shown cross-hatched in all plan views. Chamfer all exposed corners 1/4".
Piling shall be 16" Octagonal Precast Concrete piles driven to a minimum bearing of 30 tons per pile.
Use 40 diameters lap on all bent splices.
All clearance to main reinforcing 8" unless otherwise shown.
For other notes see Layout sheet 7.
New cap beams shall be constructed to match contour of bottom existing slabs at centerline bents.

| REINFORCING BAR LIST | | | | | | |
|--|------|--------|---------|------|-------------------|--------------------|
| MARK | SIZE | NUMBER | LENGTH | TYPE | DIMENSIONS A B | WEIGHT (POUNDS) |
| FOOTING REINFORCING PIERS 1 & 6-EACH | | | | | | |
| F501 | 5 | 19 | 6'-8" | 100 | 5'-6" | 7 |
| F502 | 5 | 6 | 27'-0" | Str. | | |
| F802 | 8 | 32 | 5'-9" | 104 | 4'-6" | 1'-3" |
| | | | | | Total for one | 792 |
| | | | | | Total for two | 1584 |
| FOOTING REINFORCING PIERS 2, 3, 4 & 5-EACH | | | | | | |
| F401 | 4 | 19 | 13'-0" | 109 | 4'-0" | 2'-0" |
| F601 | 6 | 6 | 25'-0" | Str. | | |
| F602 | 6 | 10 | 8'-2" | 129 | 3'-2" | 2'-6" |
| F801 | 8 | 32 | 6'-8" | Str. | | |
| F901 | 9 | 4 | 25'-0" | Str. | | |
| | | | | | Total for one | 1423 |
| | | | | | Total for four | 5692 |
| REINFORCING PIERS 1 & 6-EACH | | | | | | |
| P401 | 4 | 25 | 8'-8" | 109 | 2'-0" | 1'-10" |
| P403 | 4 | 4 | 392'-4" | 119 | 1'-8" | 13'-10" |
| P601 | 6 | 2 | 27'-0" | Str. | | |
| P801 | 8 | 2 | 27'-0" | Str. | | |
| P802 | 8 | 2 | 16'-0" | Str. | | |
| P804 | 8 | 32 | 15'-10" | Str. | | |
| P901 | 9 | 2 | 27'-0" | Str. | | |
| | | | | | Total for one | 3039 |
| | | | | | Total for two | 6078 |
| REINFORCING PIERS 2, 3, 4 & 5-EACH | | | | | | |
| P401 | 4 | 25 | 8'-8" | 109 | 2'-0" | 1'-10" |
| P402 | 4 | 4 | 528'-3" | 119 | 1'-8" | 13'-10" |
| P601 | 6 | 2 | 27'-0" | Str. | | |
| P801 | 8 | 2 | 27'-0" | Str. | | |
| P802 | 8 | 2 | 16'-0" | Str. | | |
| P803 | 8 | 32 | 20'-10" | Str. | | |
| P901 | 9 | 2 | 27'-0" | Str. | | |
| | | | | | Total for One | 3830 |
| | | | | | Total for four | 15,320 |
| | | | | | Grand total | 28,674 |



HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS

BRIDGE ENGINEER

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK ARKANSAS
MILLWOOD RESERVOIR CROSSING
STATE HIGHWAY 355
BENTS
PLUM CREEK RELIEF
DRAWN BY: [Signature] DATE: 1-3-63
CHECKED BY: [Signature] DATE: 2-2-63
SCALE: 1/4"=1'-0"
BRIDGE NO. 2926A
DRAWING NO. 12550

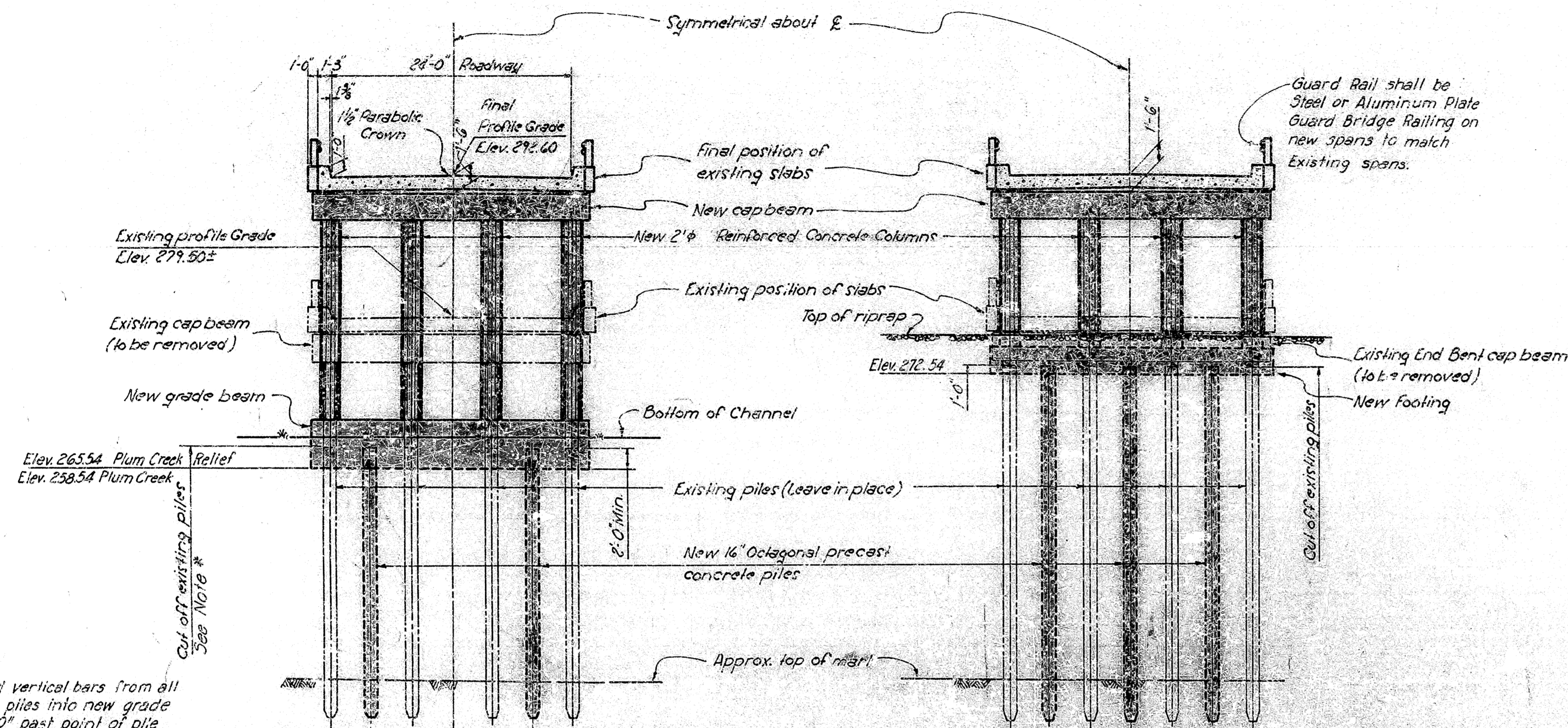
CONSTRUCTION SEQUENCE

1. Close bridge to traffic.
2. Cut existing $\frac{3}{4}$ " dowels, tying slab spans to bents, by chipping away the necessary portions of bent caps and flame cutting the dowels at the bottom surface of superstructure. Care shall be exercised so that the under-surface of slab is not damaged and that sufficient bearing surface of cap remains to adequately support the superstructure.
3. Position steel lifting beams under slabs. Timber blocking (soft wood) to be provided to conform to under-surface of slab. The deflection of lifting beams shall be taken into account in dimensioning this blocking.
4. Lift existing spans from bents and place aside on previously prepared blocking. Such blocking to be on firm footings and so arranged that spans are supported in a manner which will not produce excessive stresses.
5. Remove existing bent caps and existing end bents, **except piling**.
6. Drive new piling, cut off upper portion and strip back existing piling as shown.
7. Construct new bent footings, columns and caps.
8. Place $\frac{1}{2}$ " uniform layer of stiff grout on top of bent caps just prior to re-setting slab spans. Three layers of 45 lb. roofing felt are to be provided at the expansion end of all slabs. (Every precaution shall be taken to insure that the top surfaces of adjacent slab ends are at the same elevation.)
9. Re-set spans on new bents.
10. Drill and grout anchor dowels at the fixed end of all spans.
11. Place poured asphalt joint material between slab ends.
12. Construct new end bents and end spans.

Note:

The above sequence assumes the use of motorized cranes of ample capacity for removing and replacing existing slab spans. Other methods and equipment may be used subject to the approval of the Engineer. In any event, complete details covering the proposed system shall be submitted for the review and approval of the Engineer prior to the start of construction.

(Payment for remodeling to include cut-off of existing piles and removal of existing caps)



TYPICAL SECTION INTERMEDIATE BENTS 2,3,4 AND 5

SECTION "A-A"

Scale $\frac{1}{8}$ " = 1'-0"

TYPICAL SECTION INTERMEDIATE BENTS 1 AND 6

SECTION "B-B"

Scale $\frac{1}{8}$ " = 1'-0"

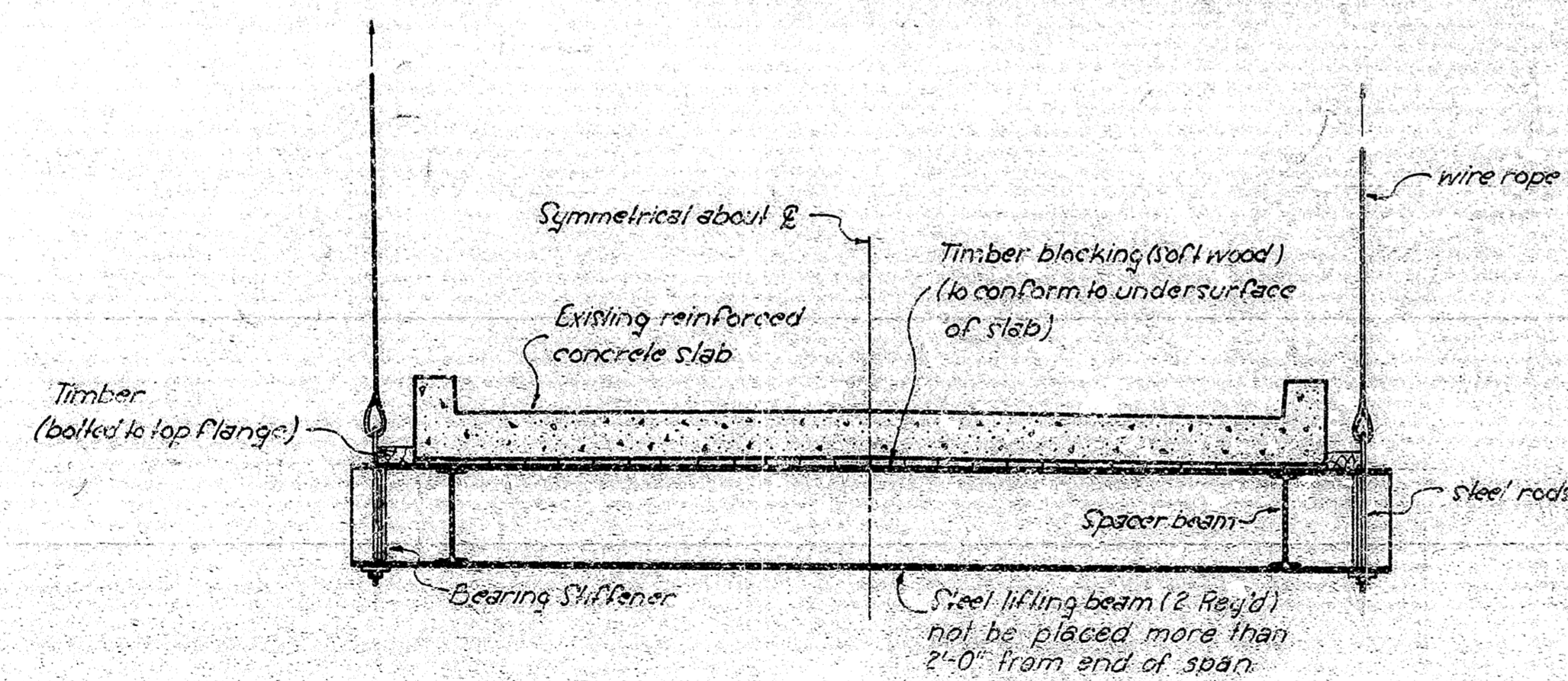
TYPICAL SECTIONS

PLUM CREEK RELIEF SHOWN, PLUM CREEK SIMILAR

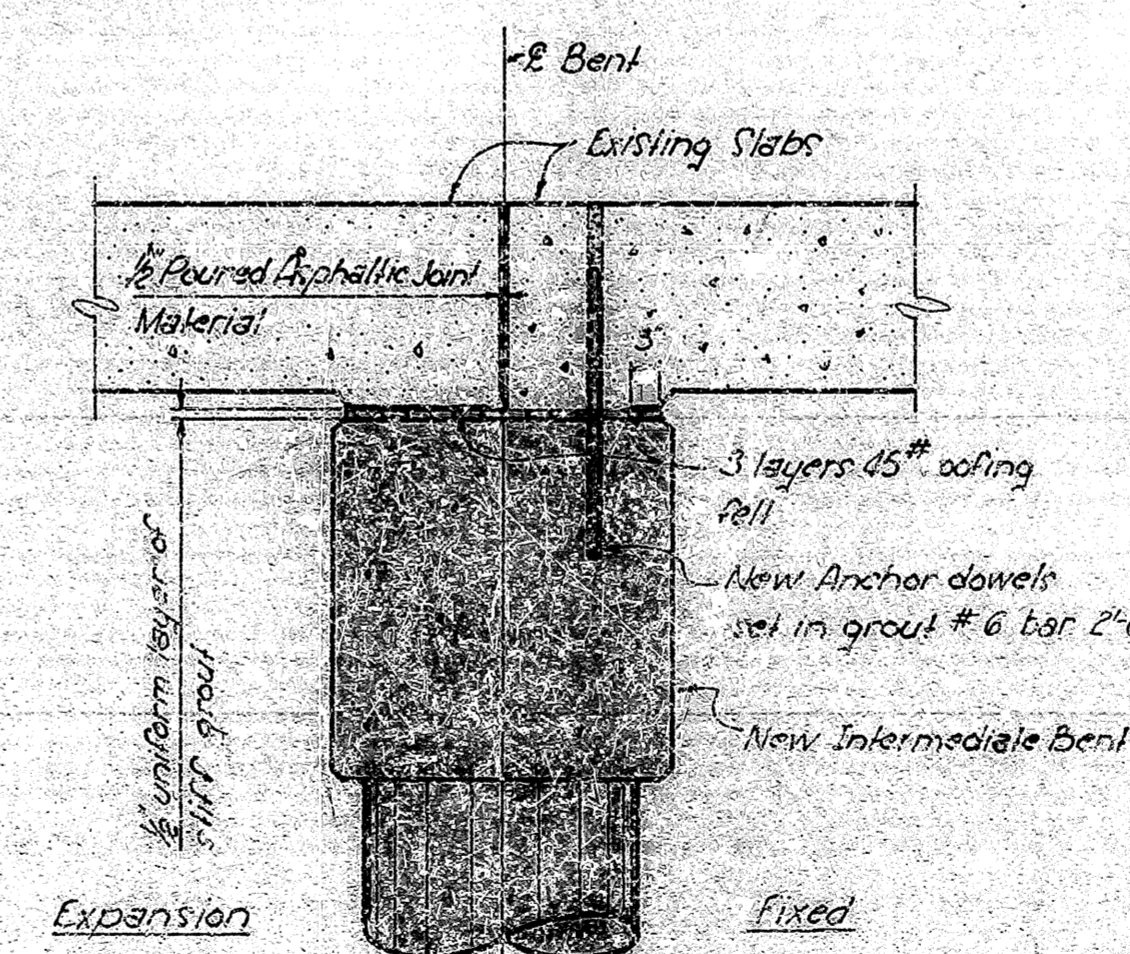
Note:*

Extend vertical bars from all concrete piles into new grade beam 2'-0" past point of pile cut off.

Measurement for payment of new concrete piles shall be to 2'-0" above cut-off line; the cost of stripping concrete from reinforcing steel shall not be paid for directly but shall be considered subsidiary to the other items of the contract.



SECTION SHOWING STEEL LIFTING BEAM

Scale $\frac{1}{4}$ " = 1'-0"

TYPICAL SECTION THRU NEW JOINT

Scale $\frac{3}{8}$ " = 1'-0"

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS

BRIDGE ENGINEER

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK ARKANSAS

MILLWOOD RESERVOIR CROSSING

STATE HIGHWAY 355

TYPICAL DETAILS

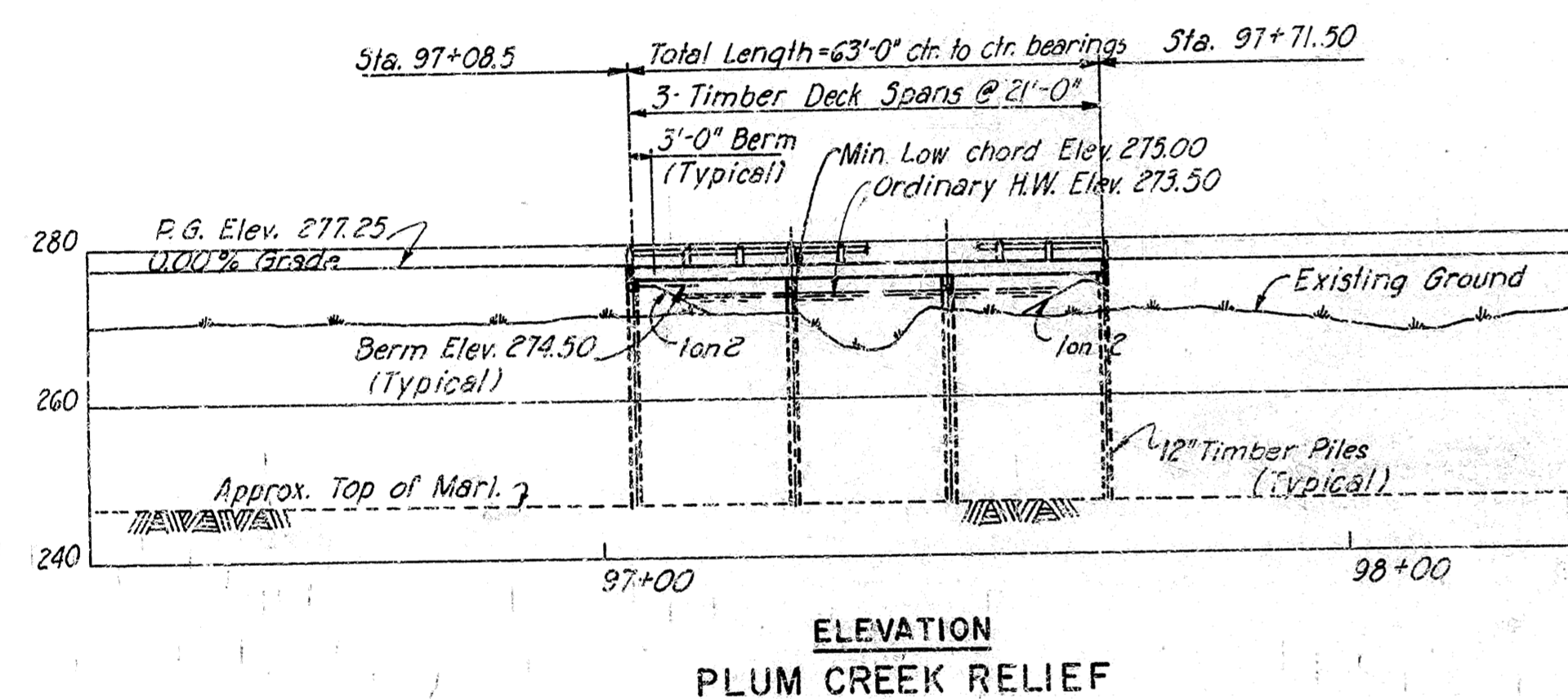
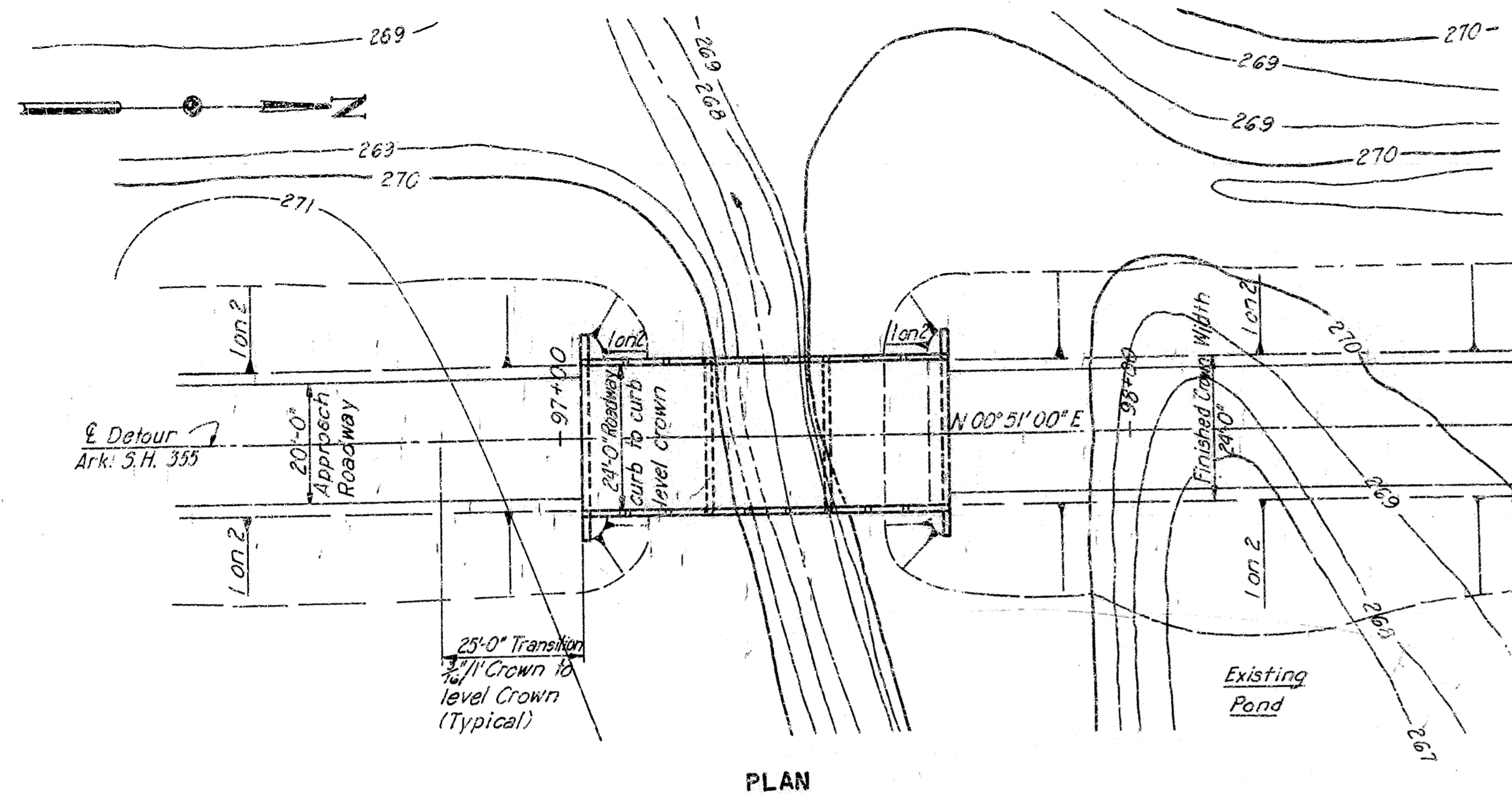
PLUM CREEK BRIDGES

DRAWN BY REL DATE 12/26/62
TRACED BY REL DATE 12/26/62

BRIDGE NO. 2925A & 2927A

CHECKED BY REL DATE 1/30/63
SCALE

DRAWING NO. 12 552



General Notes: (Common to both Bridges)

Design Specification: AASHTO 1961

Design Loading: AASHTO H15-44

Design Loading Specifications:

Specifications:
Arkansas State Highway Commission, Standard Specifications
for Highway Construction, Edition of 1959, and designated
Special Provisions.

Design Stresses:

Stringers: 1200 f B and S

Decking: 1200c P and T

Wheel Guard: 1200 B and S

Rail Post: 1600f B and S

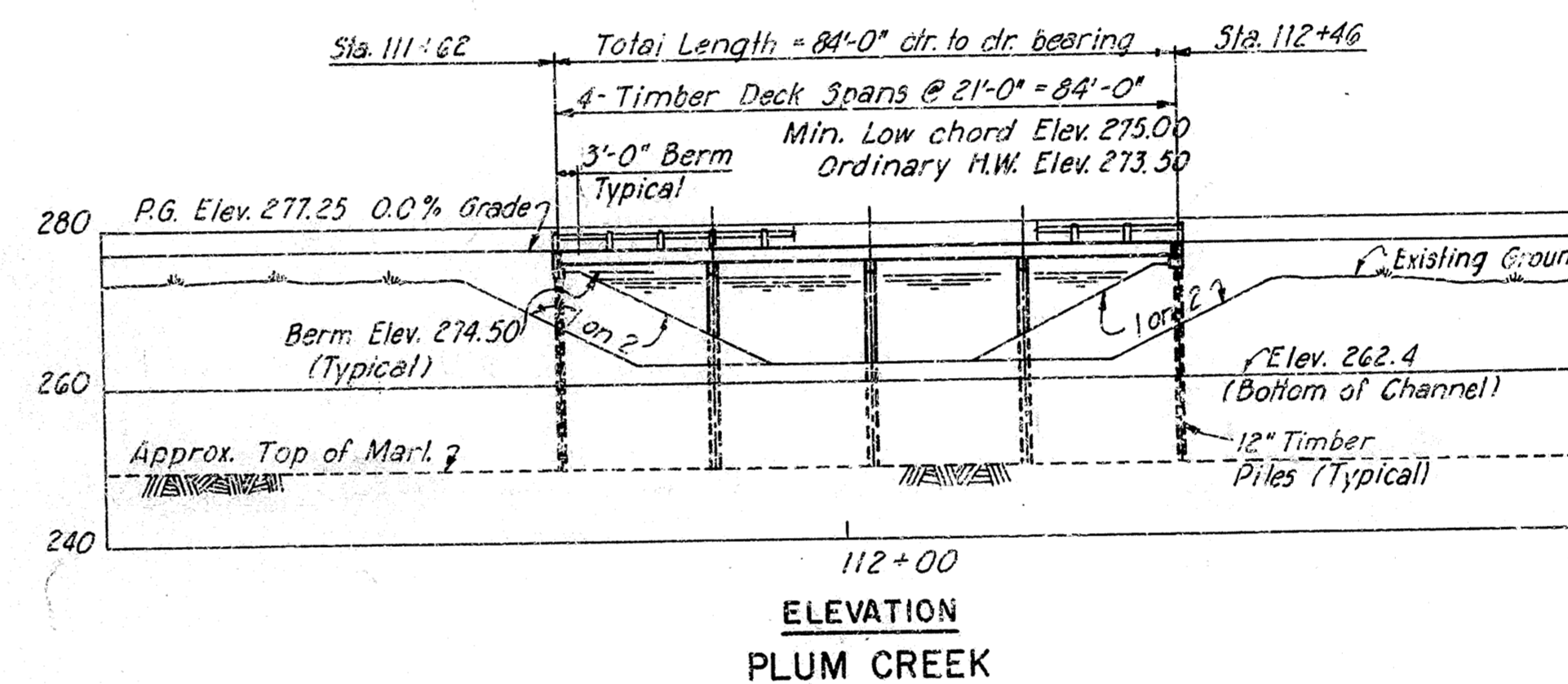
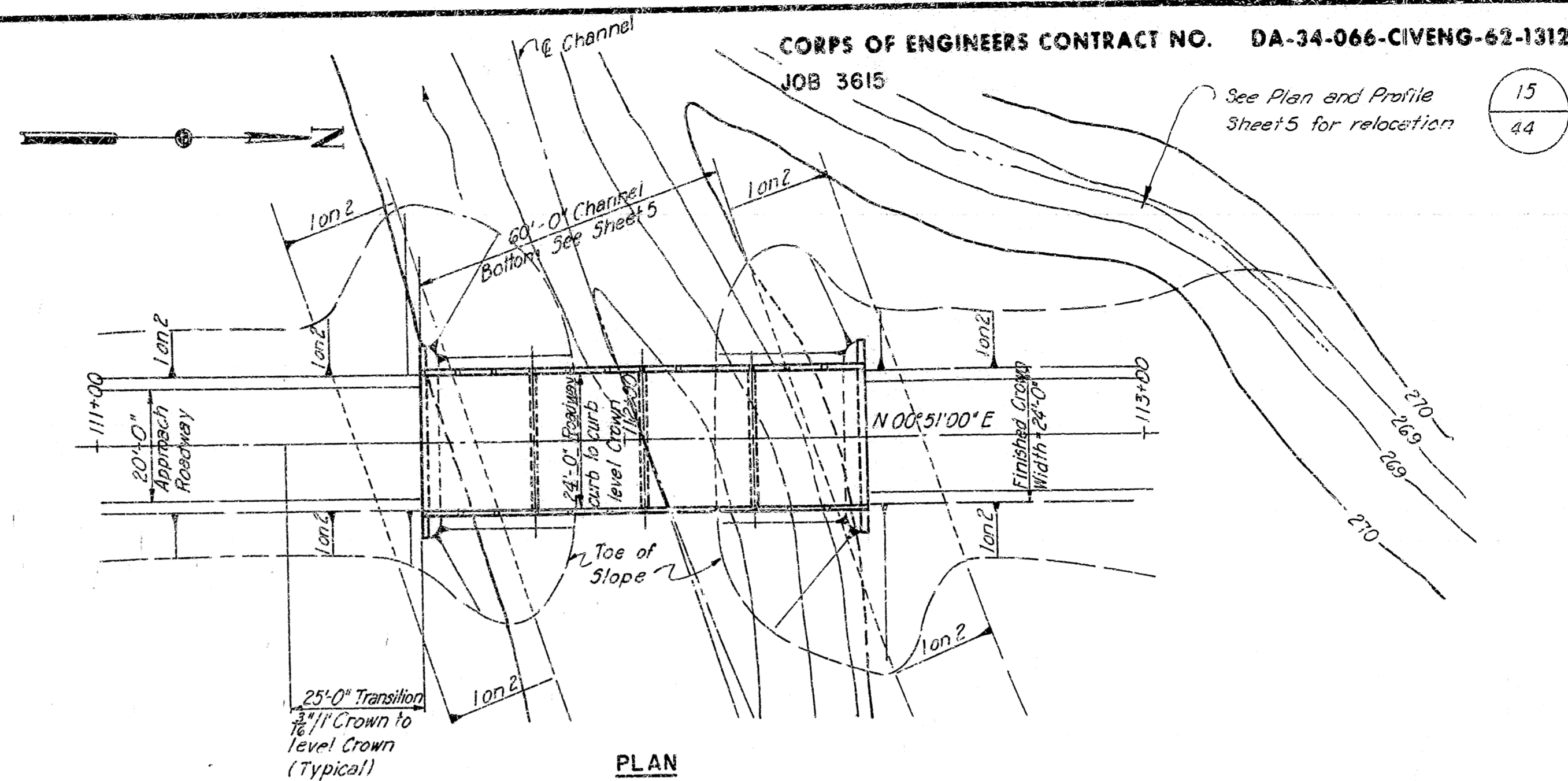
Rail: 1600f B and S

Other Lumber smaller than 5"x5": 1200f J and P
Other Lumber larger than 5"x5": 1200c P and T

All timber and lumber may be untreated.

All piles shall be 12" timber piles (either treated or untreated) and driven to a minimum bearing capacity of 20 tons per pile; except that the wing piles shall be driven to a maximum penetration of twenty (20) feet.

Approximate Timber and Lumber (including timber piles)
Quantities Plum Creek Relief 22 MBF; Plum Creek 35 MBF.



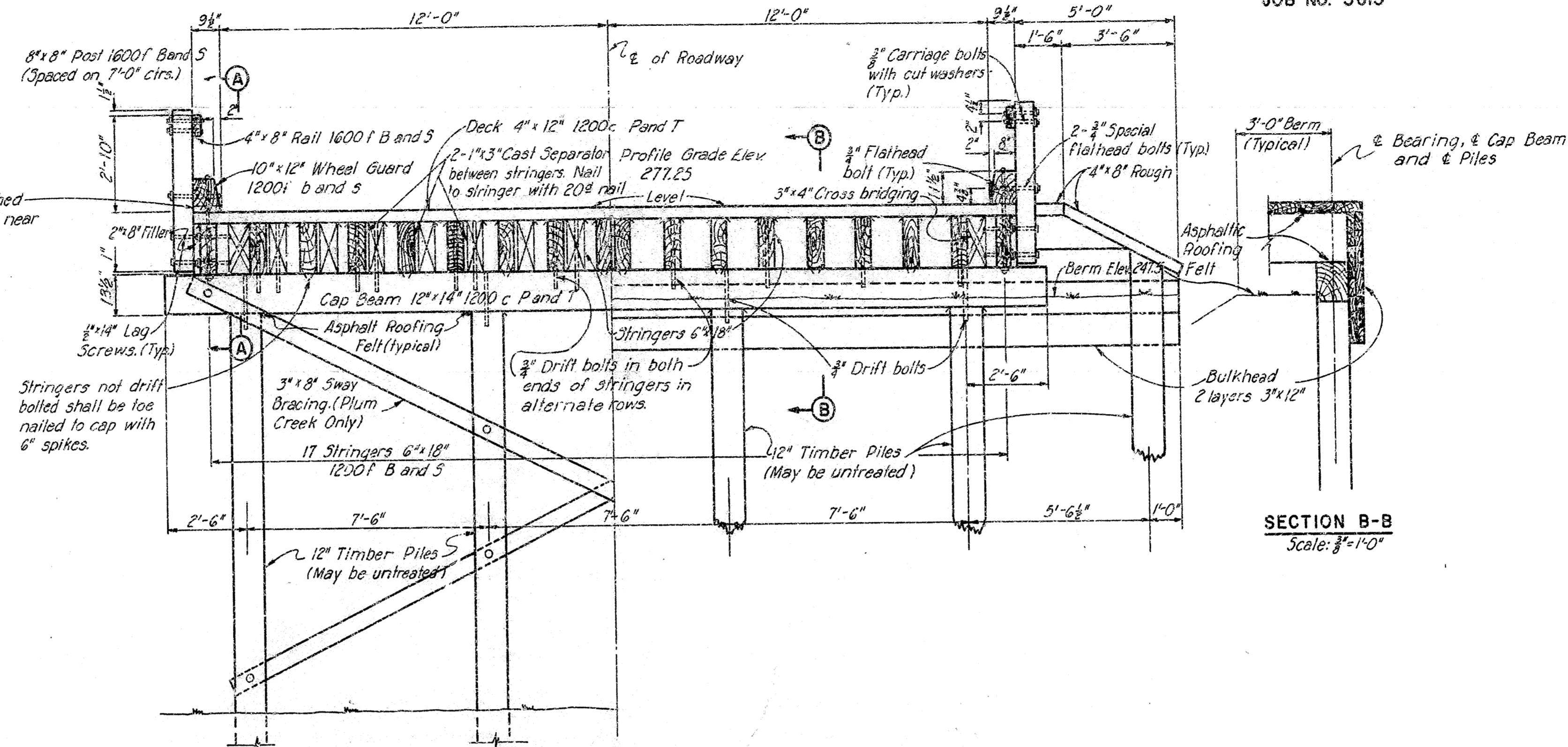
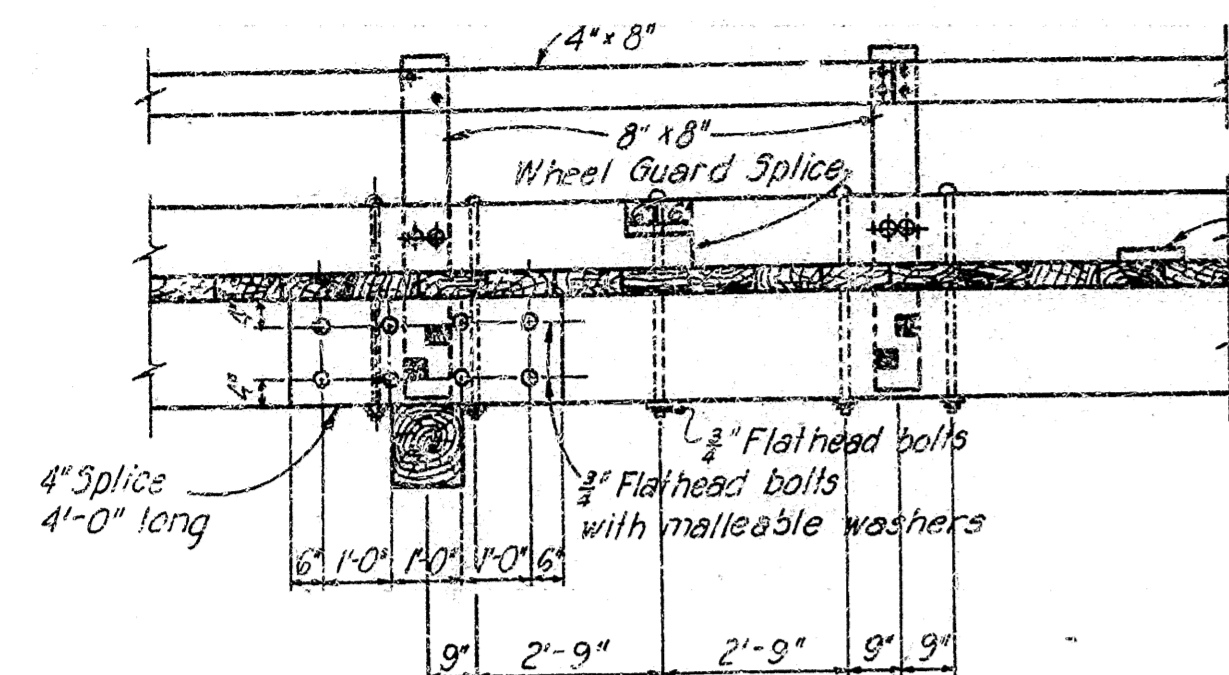
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS

BRIDGE ENGINEER

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK ARKANSAS
MILLWOOD RESERVOIR CROSSING
STATE HIGHWAY 355

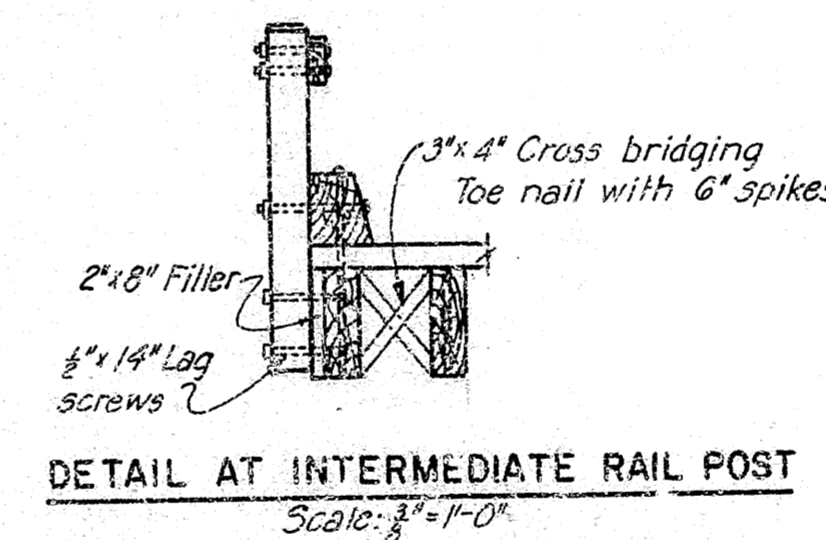
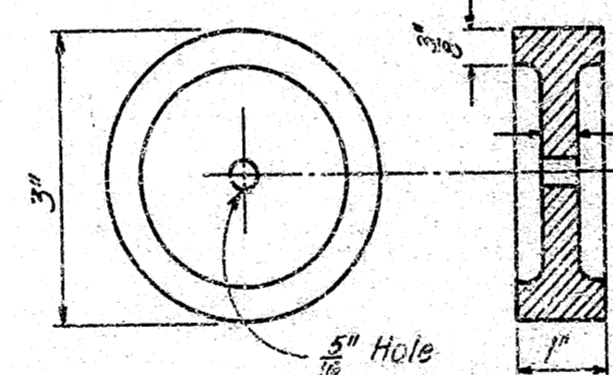
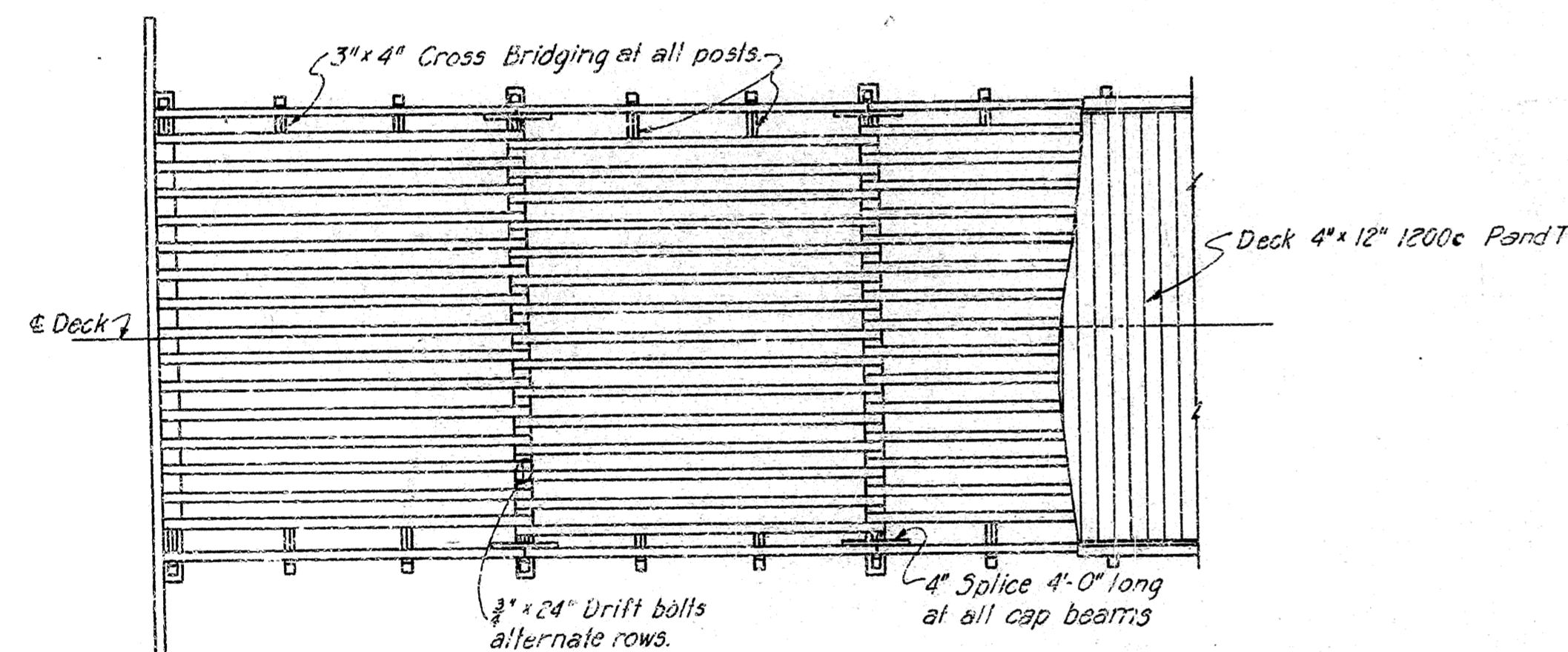
LAYOUT OF DETOUR BRIDGES
PLUM CREEK AND PLUM CREEK RELIEF

DRAWN BY SC DATE 2-2-63 CHECKED PCV DATE 2-5-63
 TRACED BY _____ DATE _____ SCALE _____
 BRIDGE NO. _____ DRAWING NO. 12553



TYPICAL HALF SECTION
SHOWING BULKHEAD
Scale: 3/8"=1'-0"

SECTION B-B
Scale: 3/8"=1'-0"

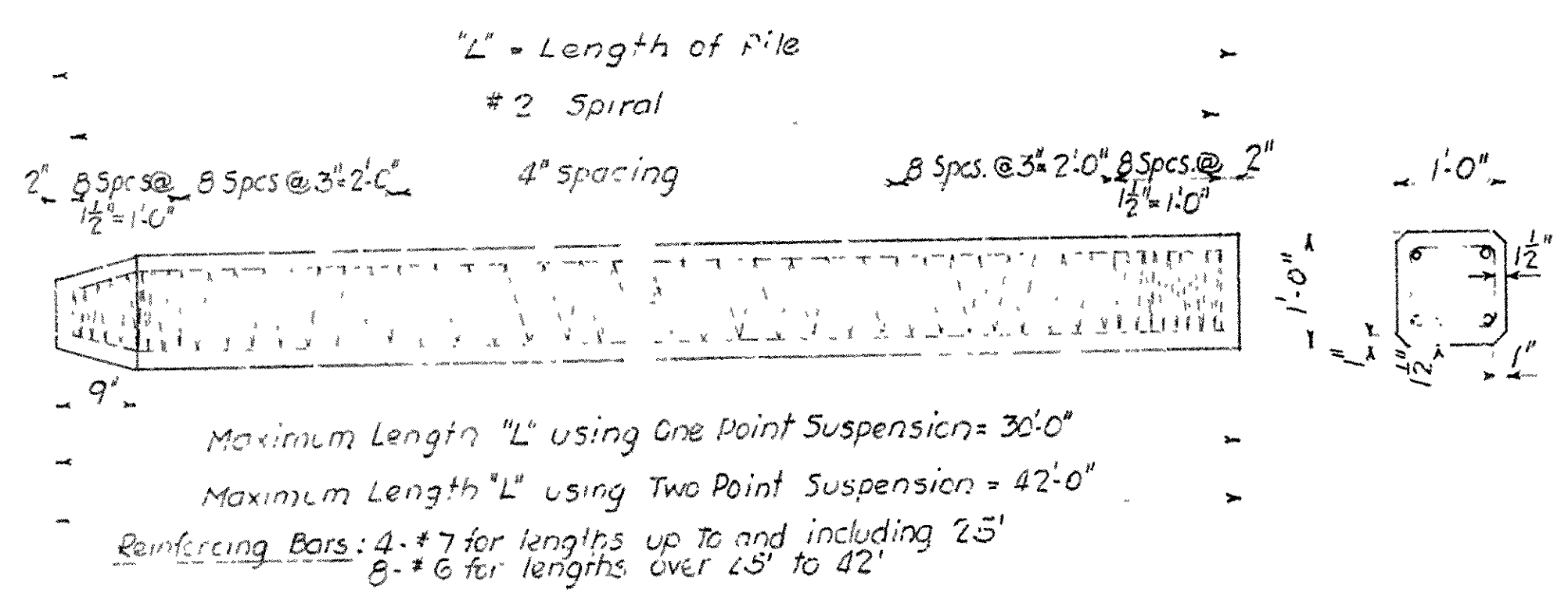


HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS

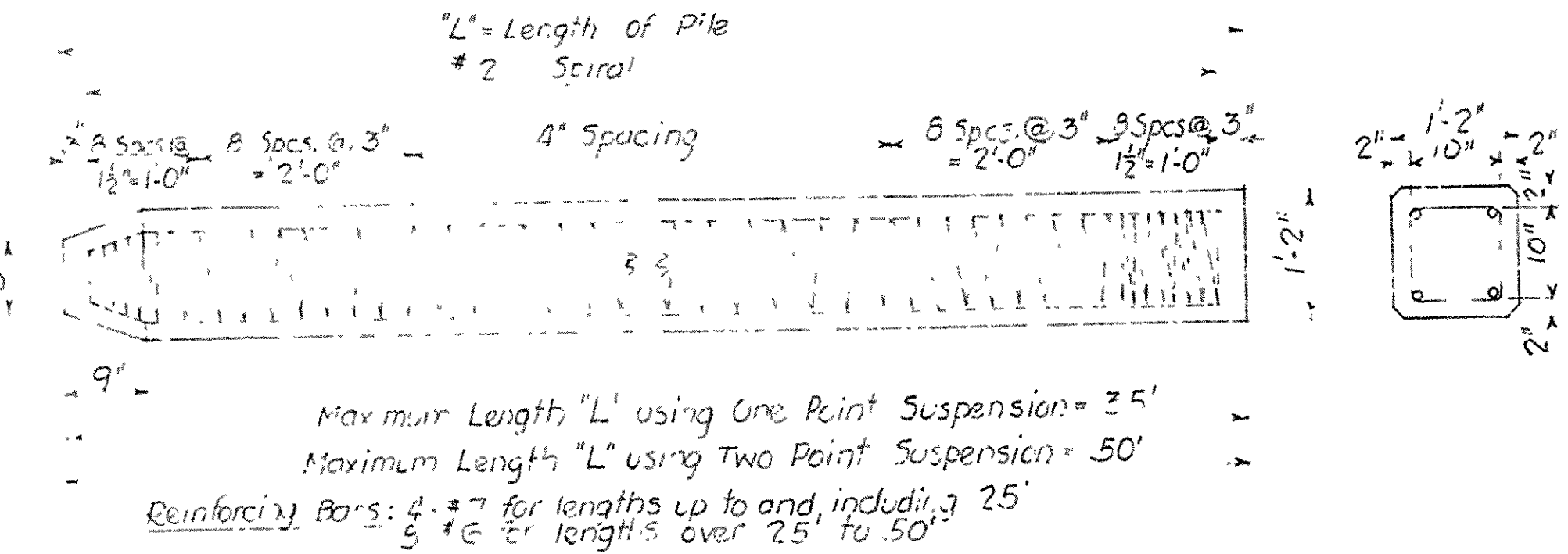
BRIDGE ENGINEER

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK ARKANSAS
MILLWOOD RESERVOIR CROSSING
STATE HIGHWAY 355
DETAILS OF DETOUR BRIDGES

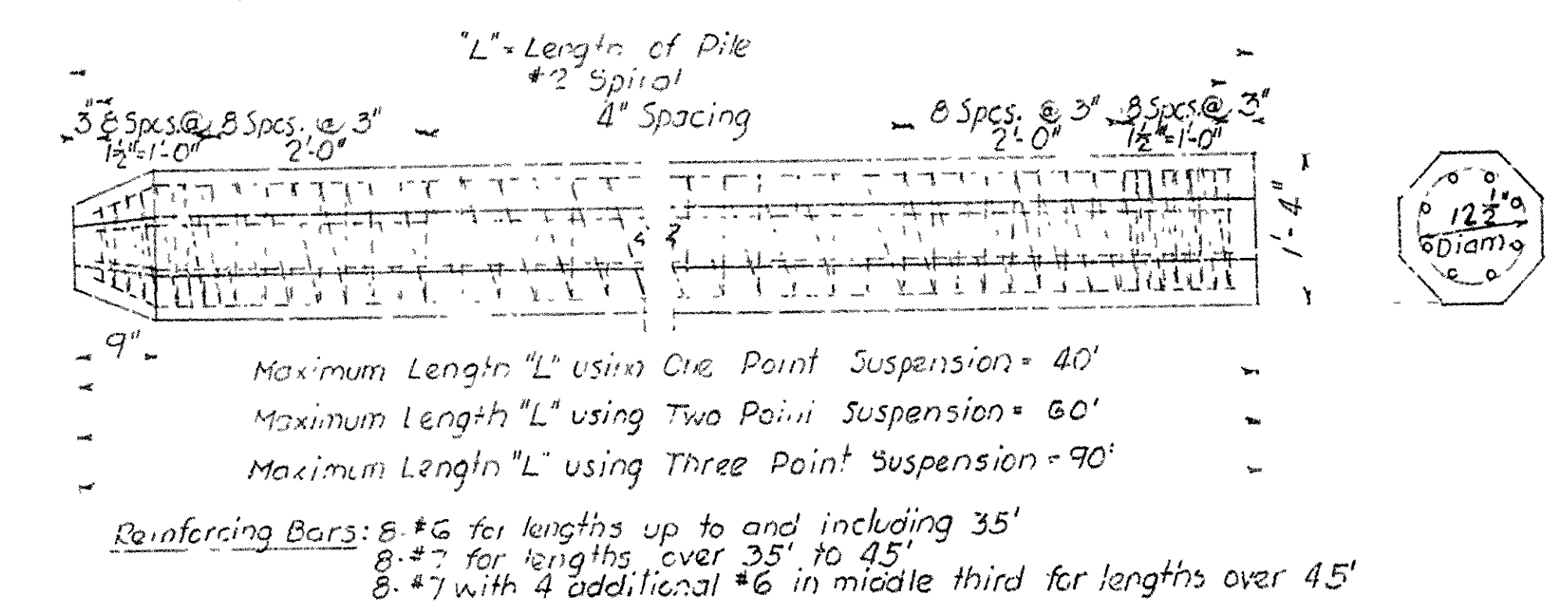
DRAWN BY SA DATE 2-2-63 CHECKED BCV DATE 2-2-63
TRACE BY SA DATE 2-2-63 SCALE As Shown
BRIDGE NO. 12554 DRAWING NO. 12554



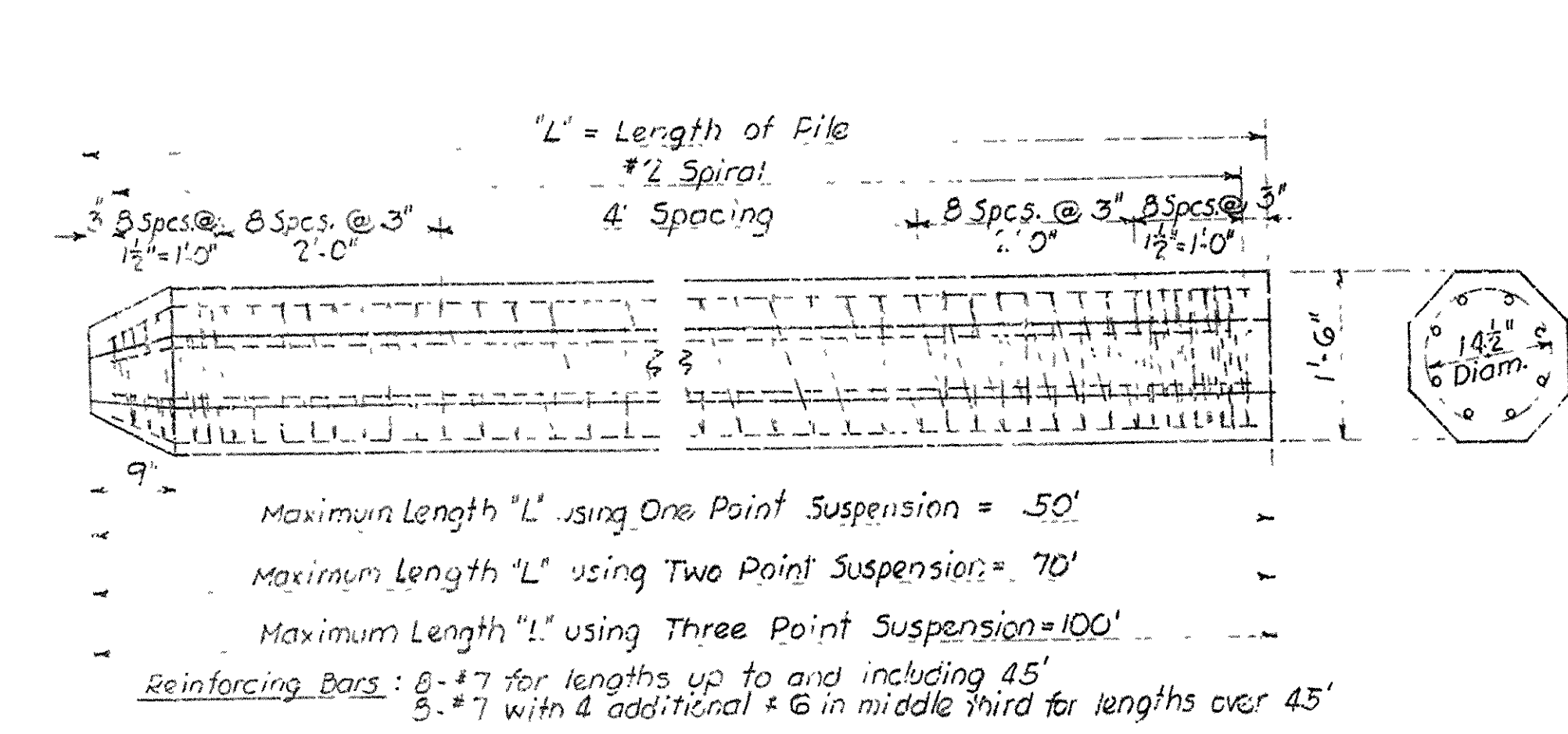
DETAILS OF 12" SQUARE PILE



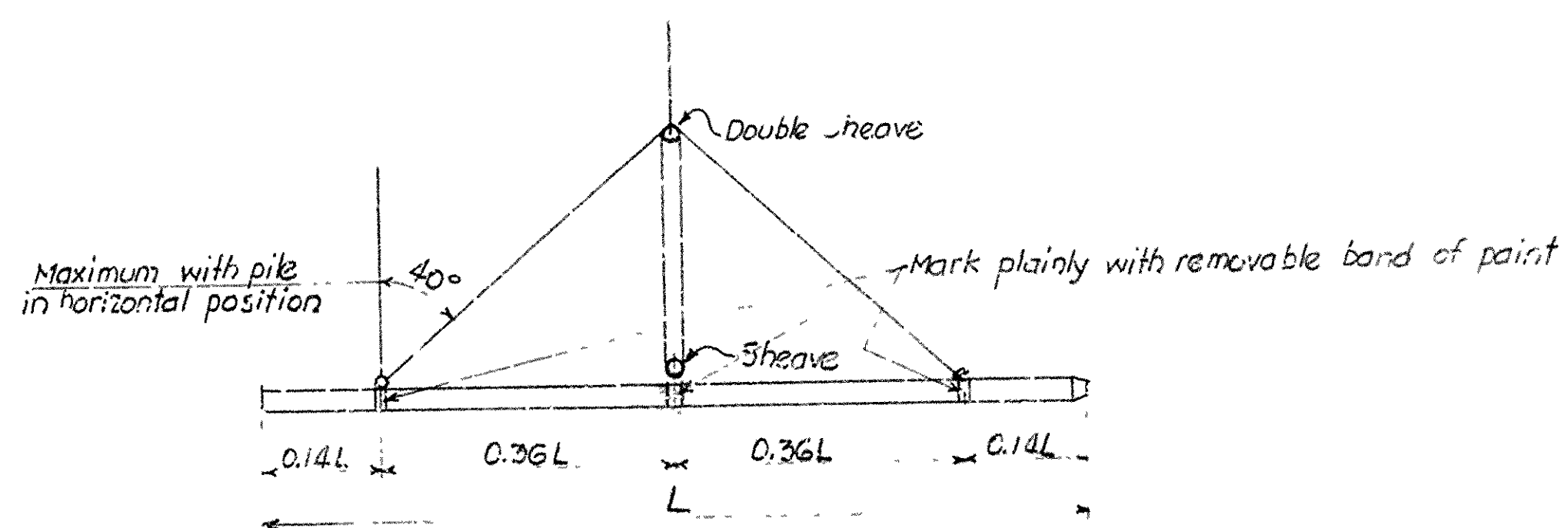
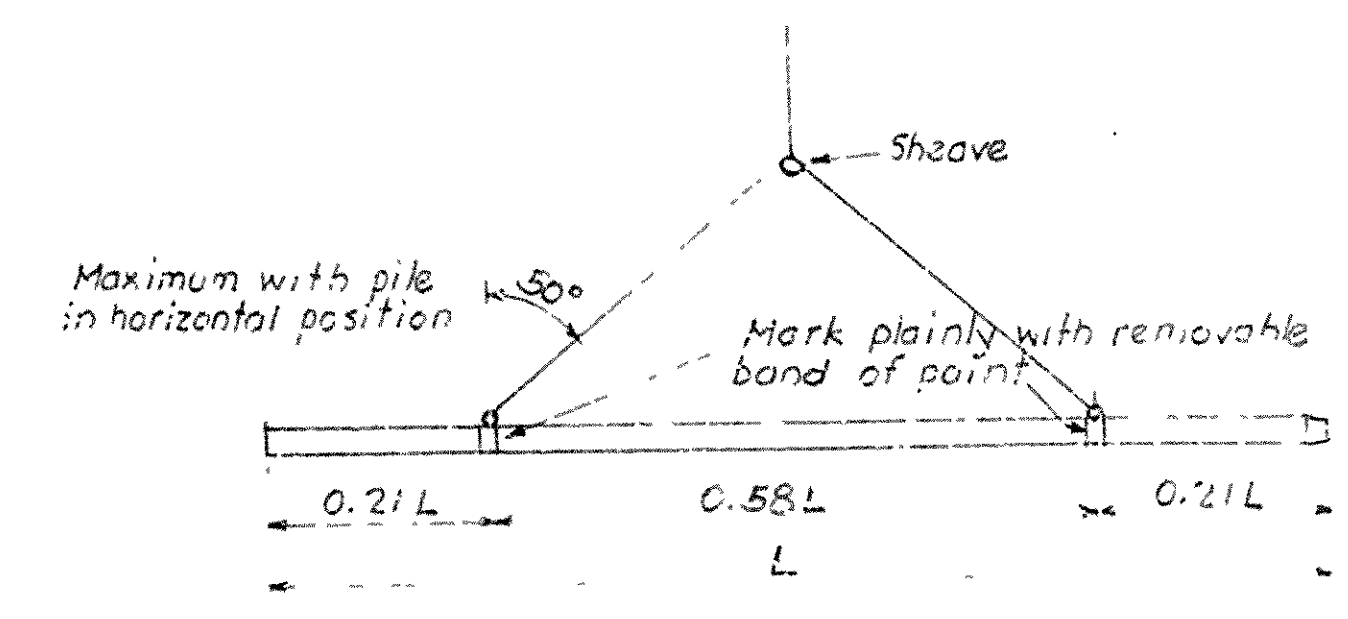
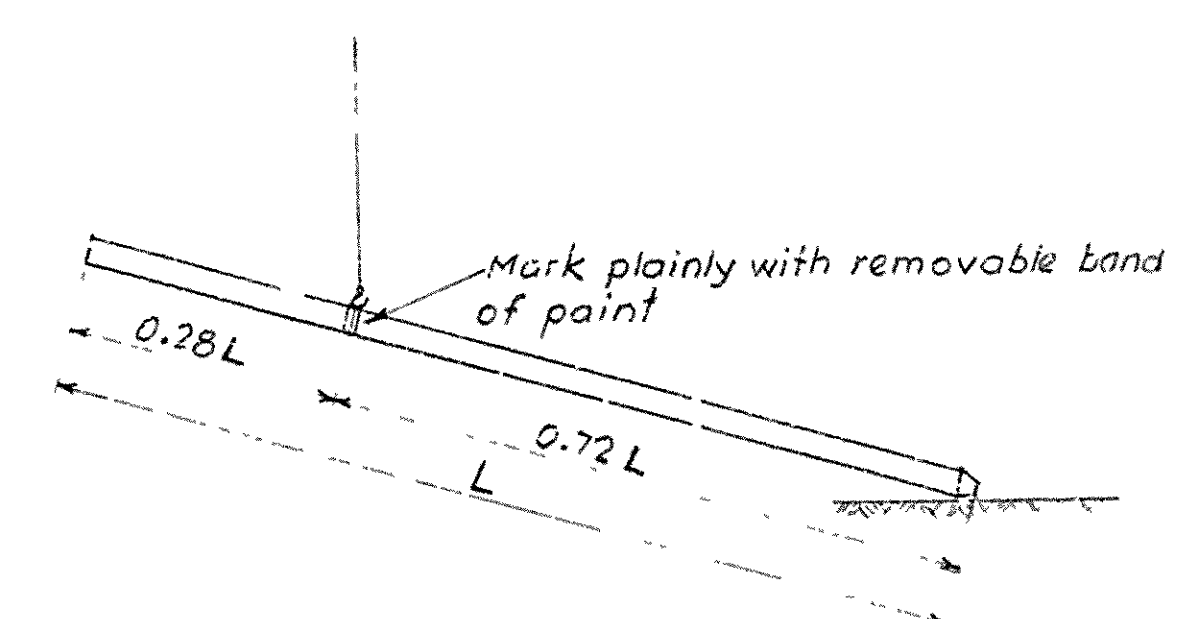
DETAILS OF 14" SQUARE PILE



DETAILS OF 16" OCTAGONAL PILE



DETAILS OF 18" OCTAGONAL PILE



Prestressing Alternate:-

As an alternate to the reinforcement shown, these piles may be prestressed by the use of steel strands of high tensile cold-drawn uncoated stress-relieved wire strands having an ultimate tensile strength of not less than 250,000 p.s.i. and an elongation at rupture of not less than 3% in 10"; number and size of strands and prestressing load to be as follows:-

| File Size | Wire Strands No. Nominal Dia. | * Prestressing Force Per Strand |
|---------------|----------------------------------|------------------------------------|
| 12" Square | 8 3/16" | 10150* |
| 14" Square | 12 3/16" | 10150* |
| 16" Octagonal | 12 3/8" | 14000* |
| 18" Octagonal | 16 3/8" | 14000* |

* Prestressing force to be not more than 0.7 of the ultimate value of strand.

To permit splicing for buildup, where necessary, of prestressed piles, reinforcing as shown in details shall be provided in butt end of pile for a length of 5' and 6' for No. 6 & No. 7 bars respectively.

GENERAL NOTES

All concrete to be Class "S"
Longitudinal reinforcing steel shall be determined bars of intermediate grade, unless otherwise modified by Special Provisions. Spiral shall be formed from plain round billet steel reinforcing bars.
SPECIFICATION 5: Arkansas State Highway Commission Standard Specifications for Highway Construction, Edition of 1959.

DETAILS OF STANDARD PRECAST CONCRETE PILES

ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: L.W.H. DATE: 7-26-58
TRACED BY: J.A. DATE: 4-21-58
CHECKED BY: D.K. DATE: 7-27-58
RETRACTED BY: J.M. DATE: 9-2-58
BRIDGE NO. DRAWING NO. 2382

Revisions:-
Provisions for prestressing 1-6-58 H.B.
Prestressing strands, forces 4-14-58 H.B.
Number Prestressing Strands 16" Pile 10-31-58 H.B.
General Notes 2-26-60 A.J.

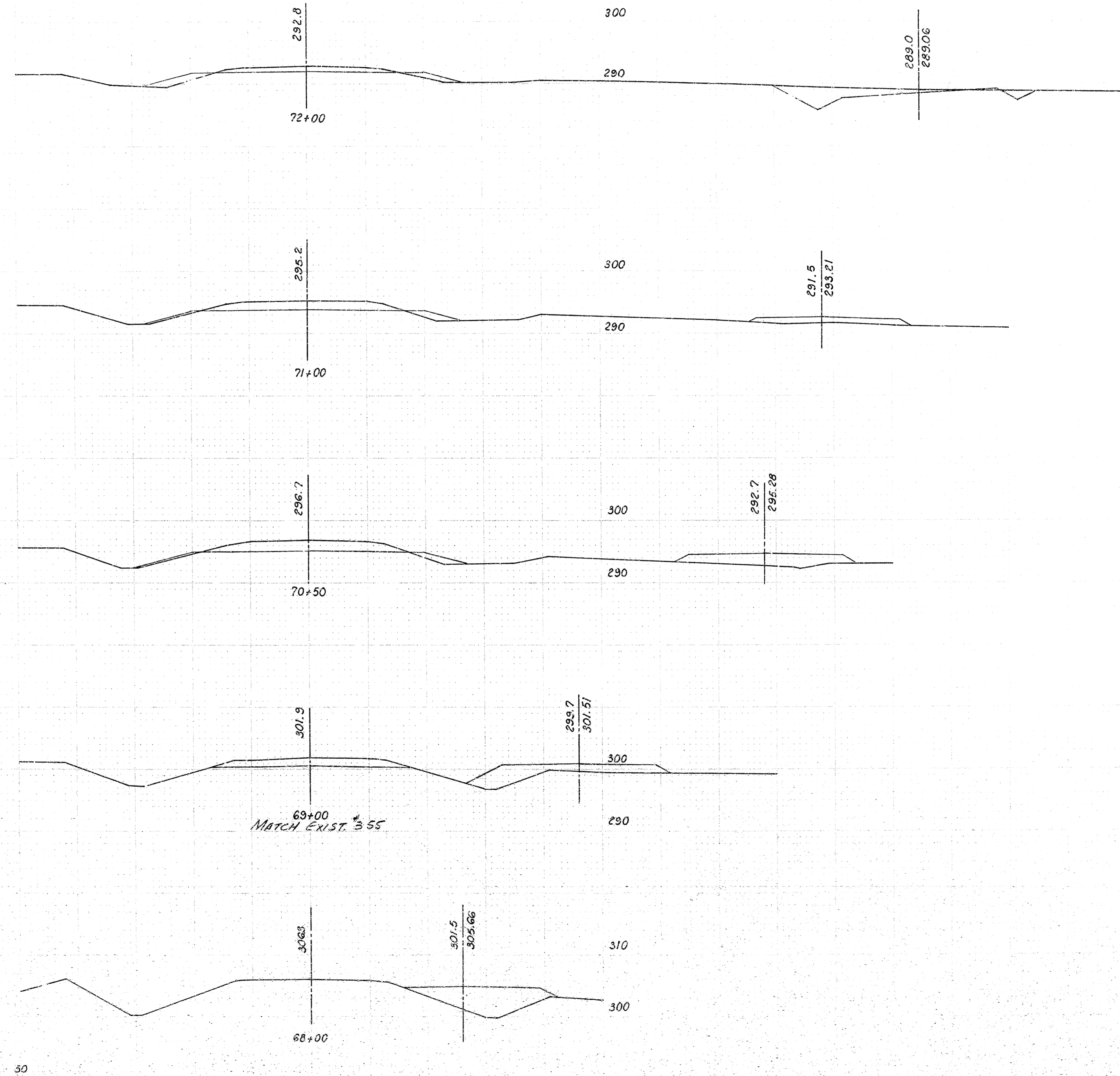
J.P. Carlson
BRIDGE DESIGN ENGINEER

See Revised 5-22-61

CORPS OF ENGINEERS CONTRACT NO
DA-34-066 CIVENG-82-1312
JOB NO 3615

28
44

| END AREA | | VOLUME | |
|----------|------|--------|------|
| CUT | FILL | CUT | FILL |

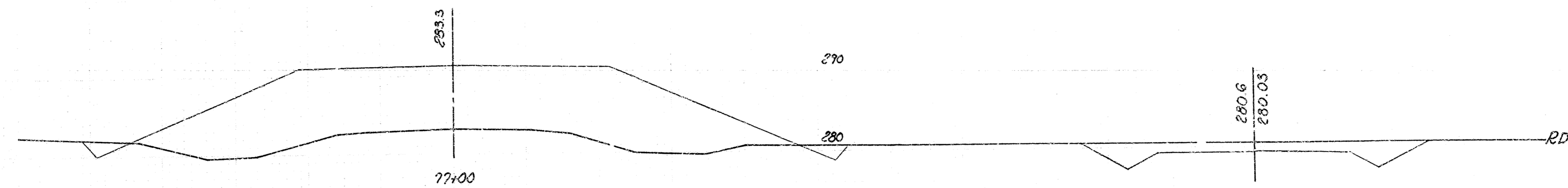


| | | | | |
|-----|----|----|-----|--------|
| RD | 20 | 17 | | |
| DET | 69 | 18 | | |
| | | | RD | 113 46 |
| | | | DET | 128 83 |
| RD | 41 | 8 | | |
| DET | 0 | 27 | | |
| | | | RD | 84 17 |
| | | | DET | 0 69 |
| RD | 50 | 10 | | |
| DET | 0 | 48 | | |
| | | | RD | 242 28 |
| | | | DET | 0 300 |
| RD | 37 | 0 | | |
| DET | 0 | 60 | | |
| | | | DET | 0 250 |
| DET | 0 | 75 | | |
| | | | DET | 17 0 |

Begin n-four
Sta. 65+86.16

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

| END AREA | | VOLUME | |
|----------|------|--------|------|
| CUT | FILL | CUT | FILL |



RD

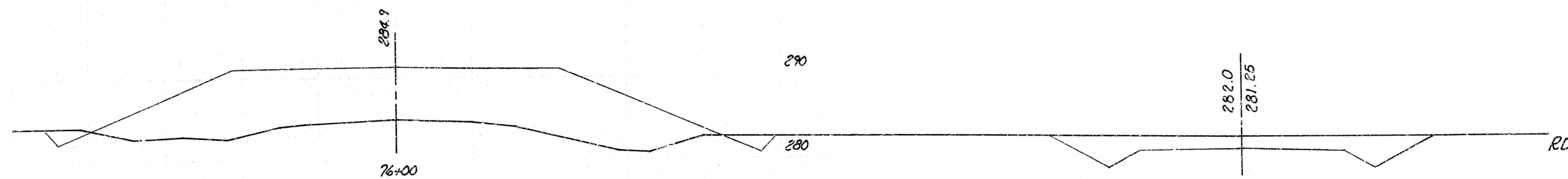
10 653

DET

75 0

RD 37 2109

DET 322 0



RD

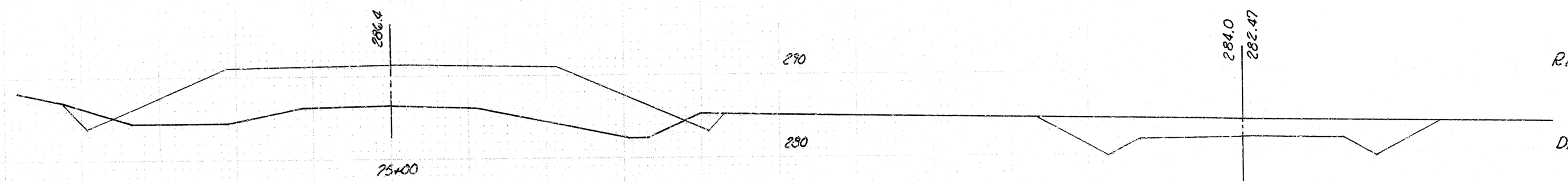
10 486

DET

99 0

RD 37 3428

DET 420 0



RD

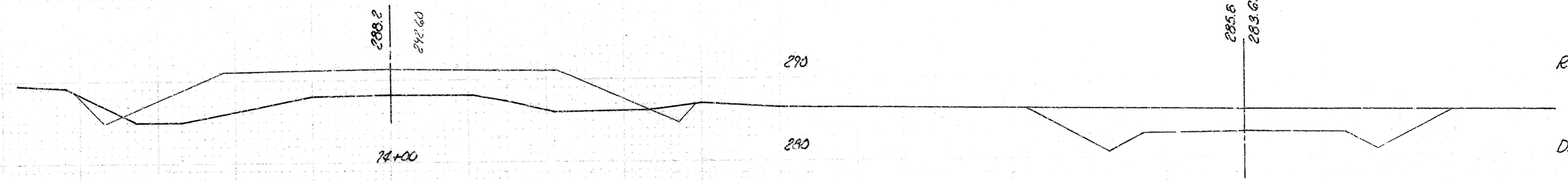
10 1365

DET

128 0

RD 37 2954

DET 541 0



RD

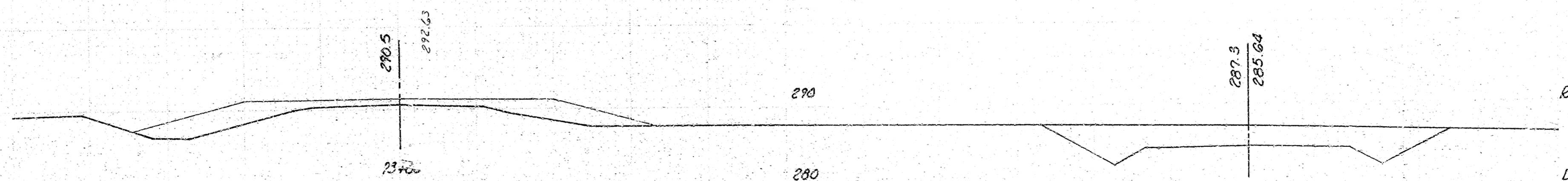
10 230

DET

164 0

RD 19 628

DET 561 0



RD

0 109

DET

139 0

RD 37 233

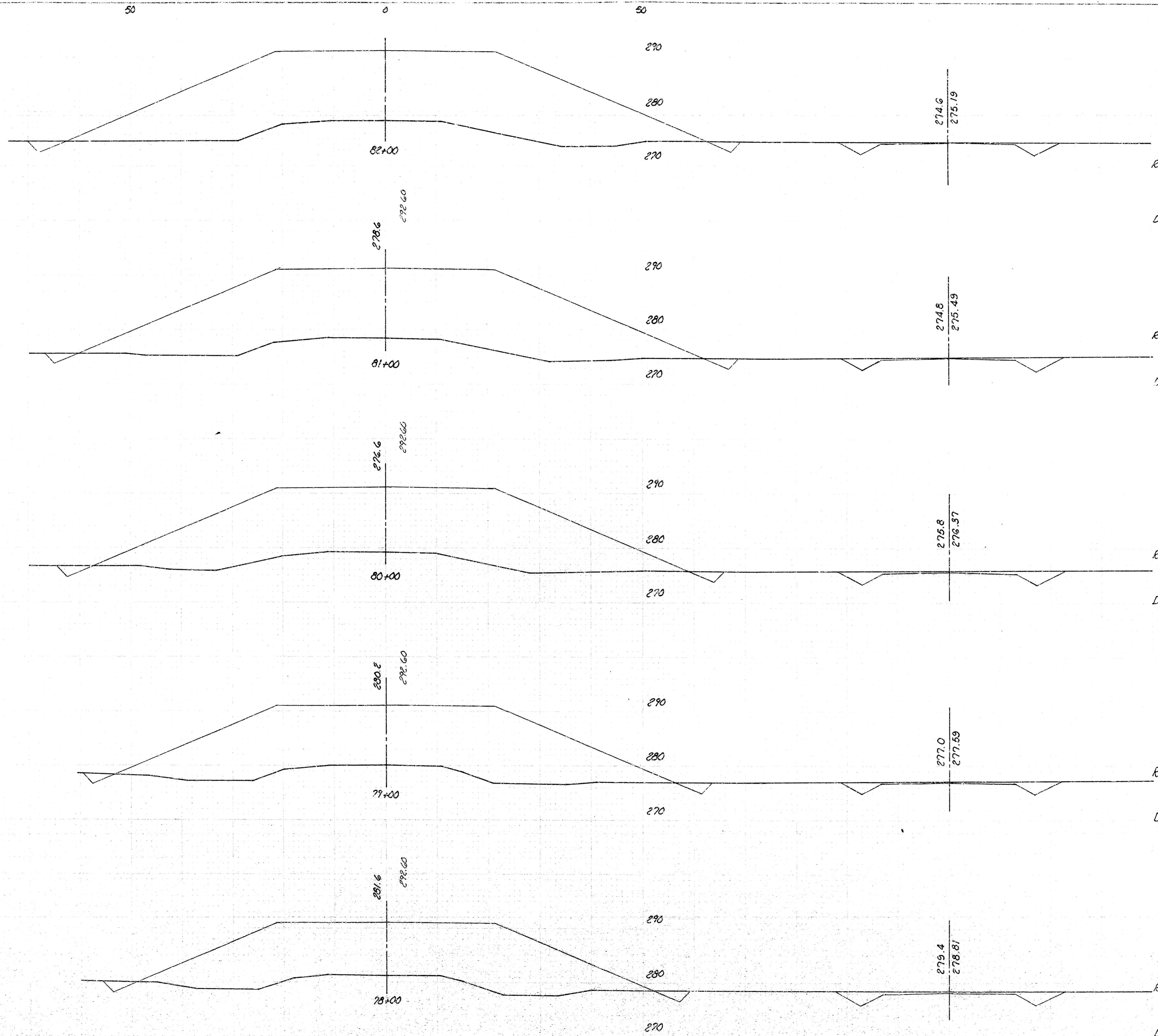
DET 385 33

Sheet No. of Sheets

CORPS OF ENGINEERS CONTRACT NO.
DA-34-066-CIVENG-62-1312
JOB NO. 3615

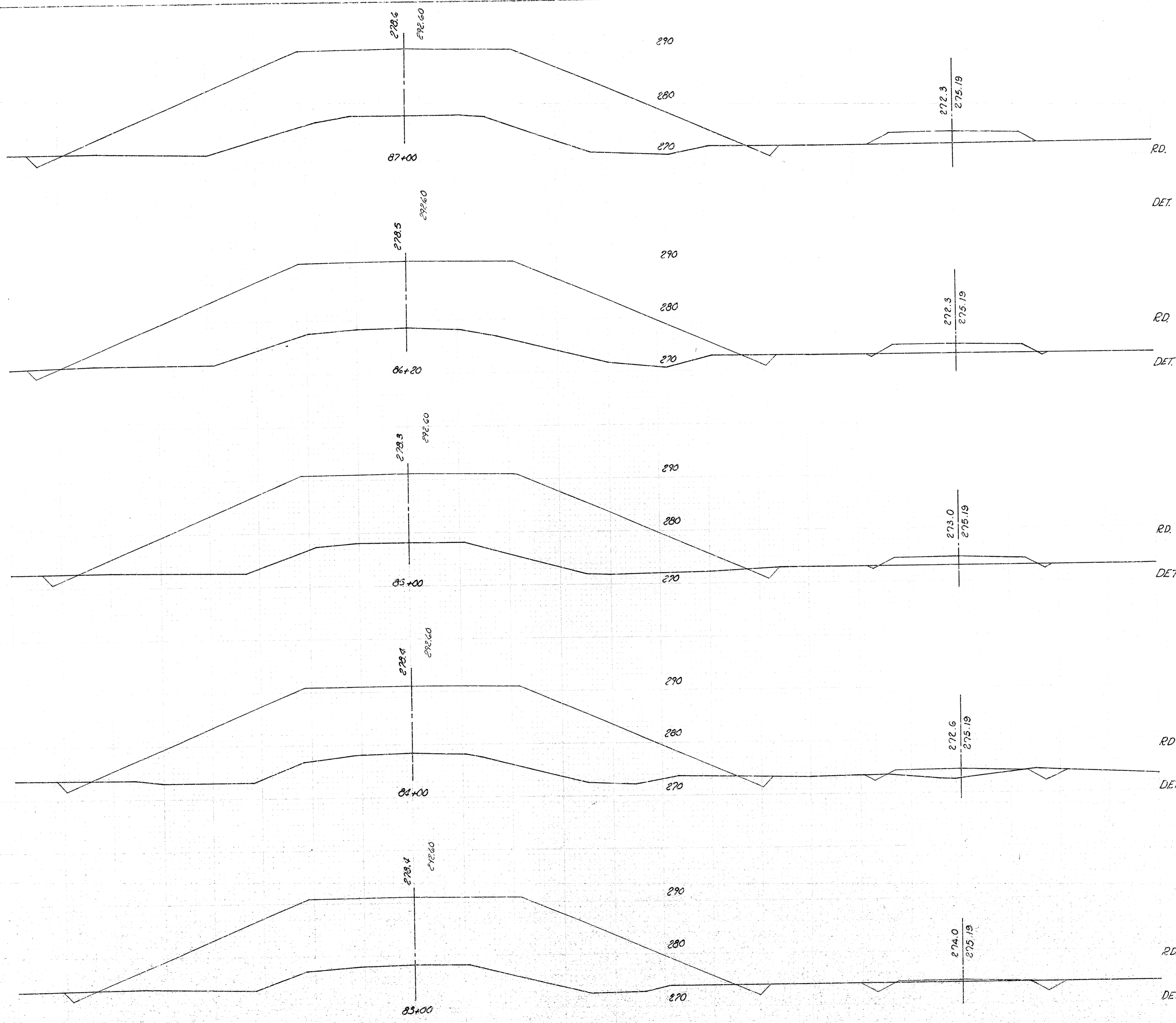
30
44

| END AREA | | VOLUME | |
|----------|------|--------|------|
| CUT | FILL | CUT | FILL |



| | | | | |
|------|----|------|------|--|
| RD. | 12 | 1256 | | |
| DET. | 27 | 0 | | |
| RD. | | 44 | 451. | |
| DET. | | 119 | 0 | |
| RD. | 12 | 1180 | | |
| DET. | 37 | 0 | | |
| RD. | | 43 | 4163 | |
| DET. | | 133 | 0 | |
| RD. | 11 | 1068 | | |
| DET. | 35 | 0 | | |
| RD. | | 43 | 3750 | |
| DET. | | 131 | 0 | |
| RD. | 12 | 957 | | |
| DET. | 36 | 0 | | |
| RD. | | 43 | 3259 | |
| DET. | | 152 | 0 | |
| RD. | 11 | 803 | | |
| DET. | 46 | 0 | | |
| RD. | | 39 | 2696 | |
| DET. | | 224 | 0 | |

| | | | |
|---------------------------------|------|--------|------|
| CORPS OF ENGINEERS CONTRACT NO. | | | |
| DA-34-066-CIVENG-62-1312 | | | |
| JOB NO. 3615 | | | |
| END AREA | | VOLUME | |
| CUT | FILL | CUT | FILL |

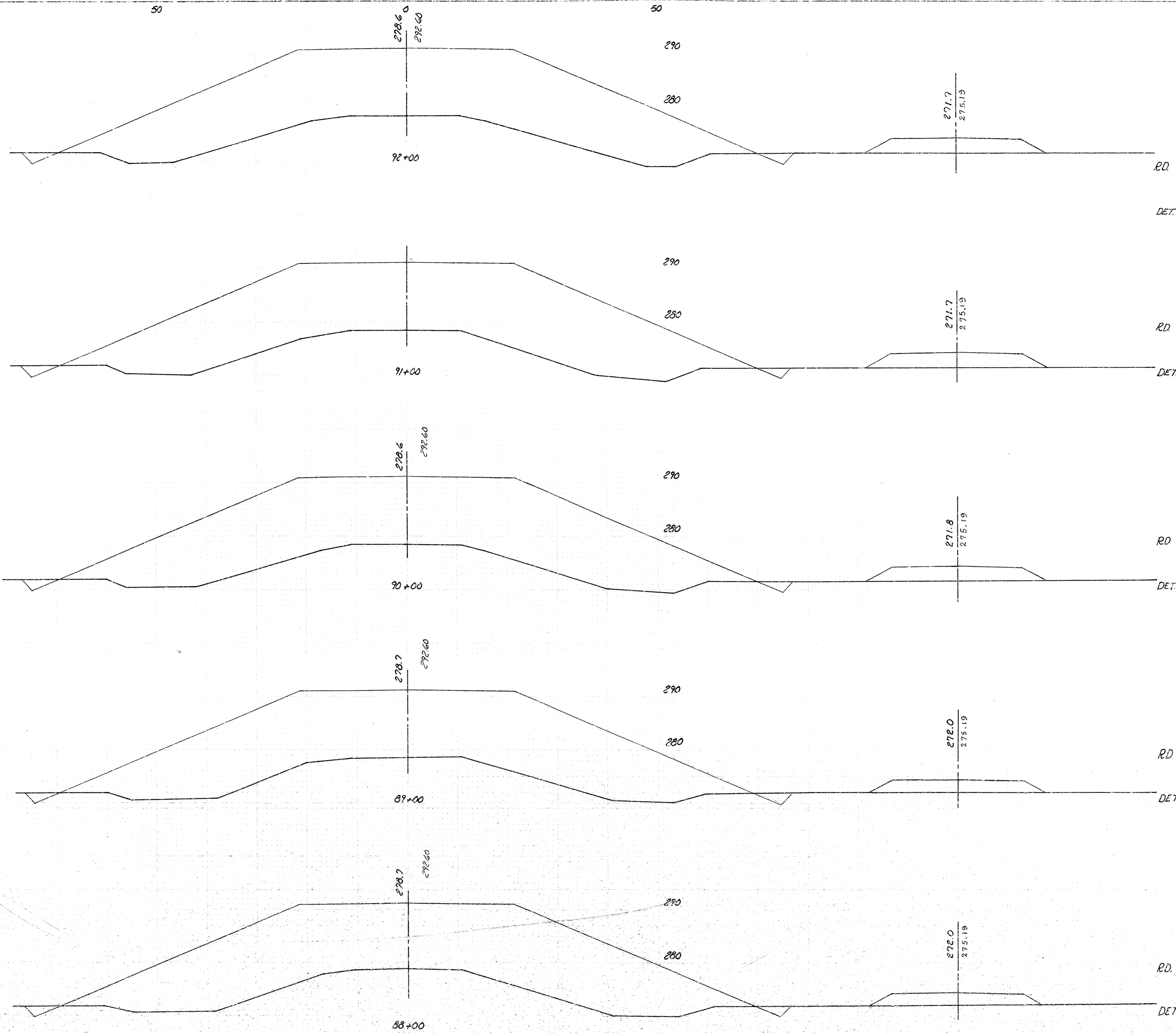


| | | | | |
|------|----|------|------|---------|
| RD. | 12 | 1411 | | |
| DET. | 0 | 63 | | |
| | | | RD. | 36 4163 |
| | | | DET. | 3 164 |
| RD. | 12 | 1399 | | |
| DET. | 2 | 48 | | |
| | | | RD. | 53 6209 |
| | | | DET. | 9 202 |
| RD. | 12 | 1395 | | |
| DET. | 2 | 43 | | |
| | | | RD. | 44 5039 |
| | | | DET. | 28 176 |
| RD. | 12 | 1326 | | |
| DET. | 13 | 52 | | |
| | | | RD. | 46 4844 |
| | | | DET. | 44 111 |
| RD. | 13 | 1290 | | |
| DET. | 11 | 8 | | |
| | | | RD. | 46 4715 |
| | | | DET. | 70 15 |

DATE
BY
CHECKED
NO.

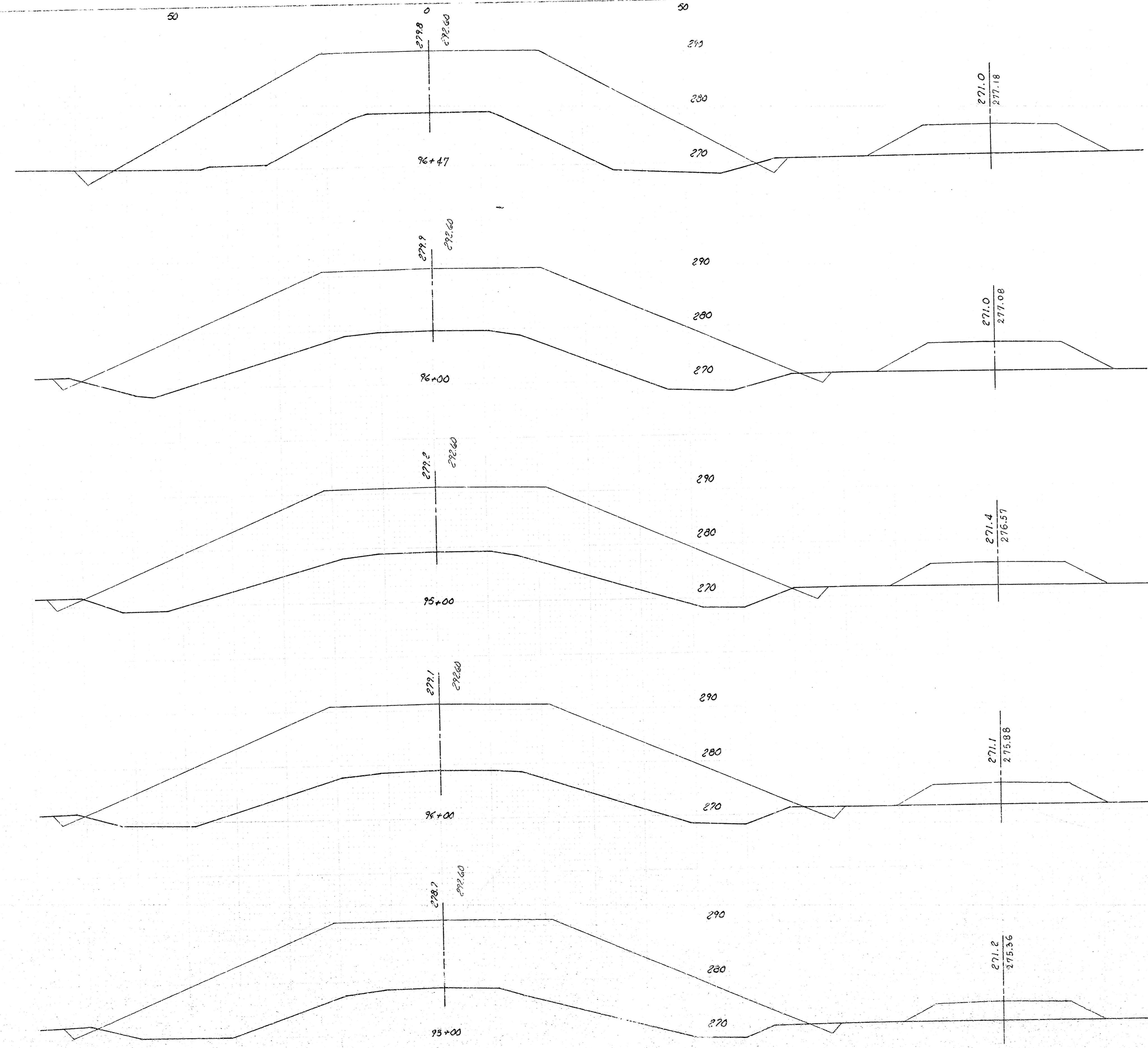
DATE
BY
CHECKED
NO.

| | | | |
|---------------------------------|------|--------|------|
| CORPS OF ENGINEERS CONTRACT NO. | | | |
| DA-34-066-CIVENG-62-1312 | | | |
| JOB NO. 3615 | | | |
| END AREA | | VOLUME | |
| CUT | FILL | CUT | FILL |



| | | | | |
|------|----|------|------|----|
| R.D. | 10 | 1495 | | |
| DET. | 0 | 88 | | |
| | | | R.D. | 37 |
| | | | DET. | 0 |
| R.D. | 10 | 1465 | | |
| DET. | 0 | 85 | | |
| | | | R.D. | 37 |
| | | | DET. | 0 |
| R.D. | 10 | 1480 | | |
| DET. | 0 | 82 | | |
| | | | R.D. | 39 |
| | | | DET. | 0 |
| R.D. | 11 | 1515 | | |
| DET. | 0 | 68 | | |
| | | | R.D. | 39 |
| | | | DET. | 0 |
| R.D. | 10 | 1512 | | |
| DET. | 0 | 66 | | |
| | | | R.D. | 41 |
| | | | DET. | 0 |

| CORPS OF ENGINEERS CONTRACT NO. | | | |
|---------------------------------|------|--------|------|
| DA-34-066-CIVENG-62-1312 | | | |
| JOB NO. 3615 | | | |
| END AREA | | VOLUME | |
| CUT | FILL | CUT | FILL |

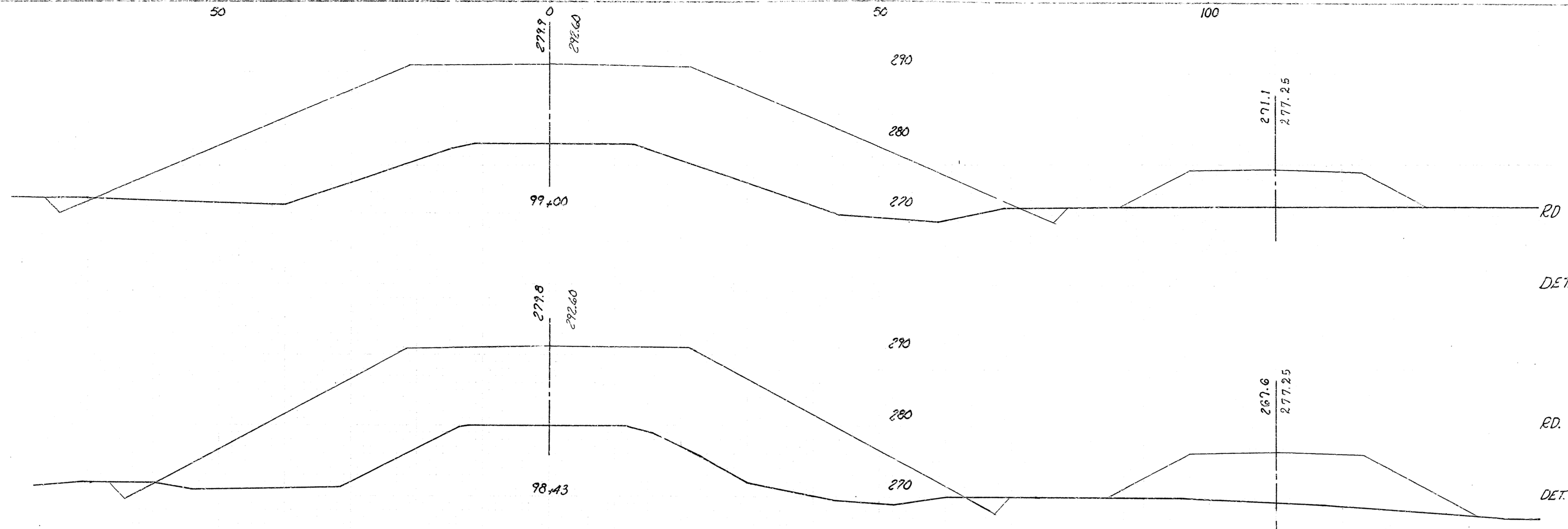


| | | | | |
|------|----|-------|------|----------|
| RD. | 10 | 1,360 | | |
| DET. | 0 | 204 | | |
| | | | RD. | 17 2,459 |
| | | | DET. | 0 341 |
| RD. | 10 | 1465 | | |
| DET. | 0 | 188 | | |
| | | | RD. | 37 5454 |
| | | | DET. | 0 607 |
| RD. | 10 | 1480 | | |
| DET. | 0 | 140 | | |
| | | | RD. | 39 5546 |
| | | | DET. | 0 524 |
| RD. | 11 | 1515 | | |
| DET. | 0 | 143 | | |
| | | | RD. | 39 5606 |
| | | | DET. | 0 463 |
| RD. | 10 | 1512 | | |
| DET. | 0 | 110 | | |
| | | | RD. | 37 5569 |
| | | | DET. | 0 367 |

Final
SURVEY
NOT TO SCALE
NO. 1000

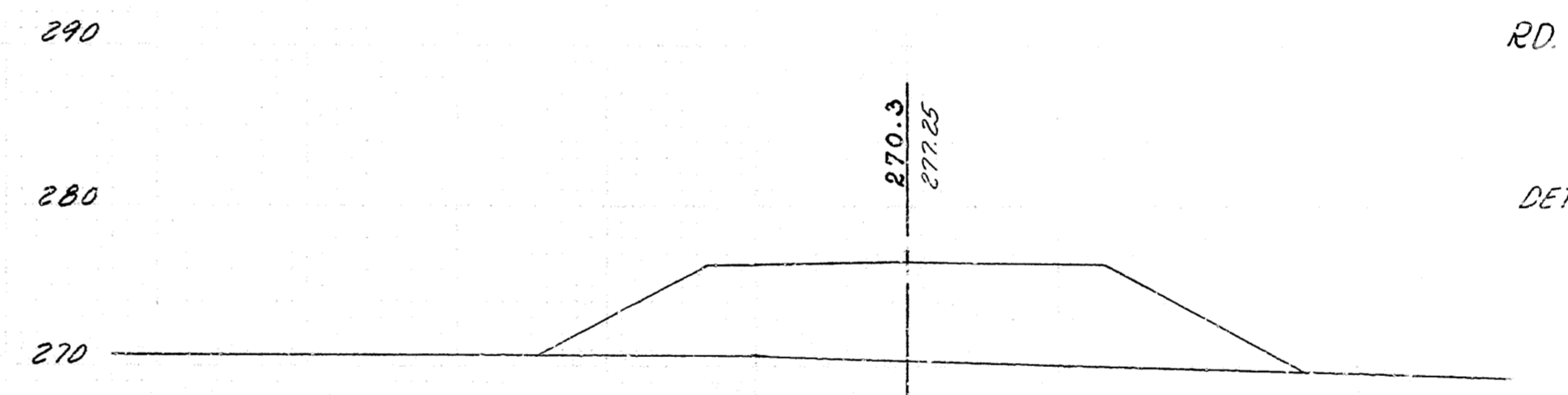
Original
SURVEY
NOT TO SCALE
NO. 1000

| CORPS OF ENGINEERS CONTRACT NO. | | | |
|---------------------------------|------|--------|------|
| DA-34-066-CIVENG-62-1312 | | | |
| JOB NO 3615 | | | |
| END AREA | | VOLUME | |
| CUT | FILL | CUT | FILL |



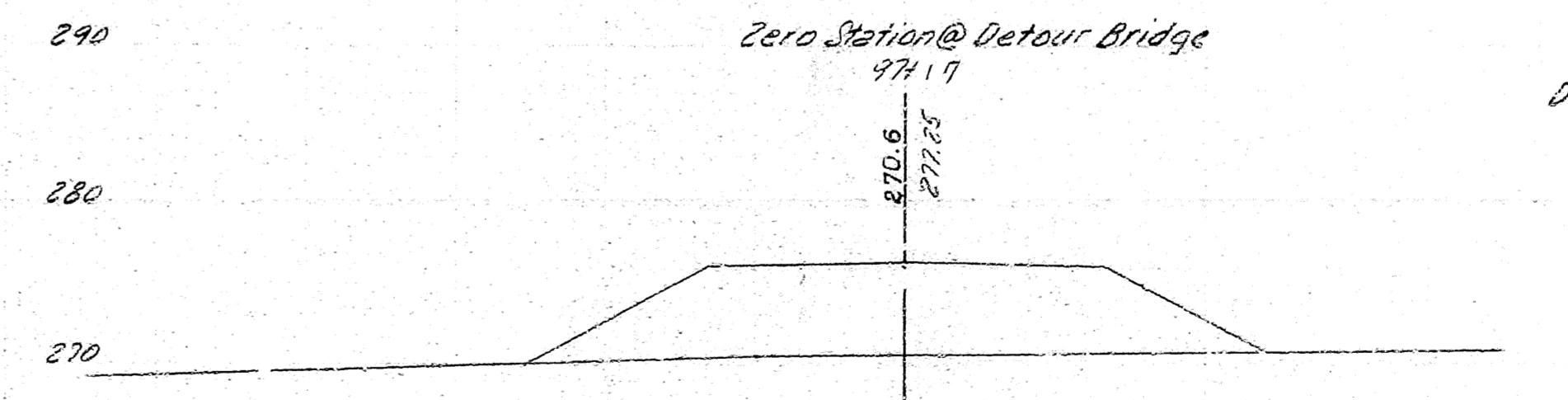
| | | | | |
|------|----|------|--|--|
| RD | 11 | 1425 | | |
| DET. | 0 | 183 | | |
| RD. | 23 | 2833 | | |
| DET. | 0 | 495 | | |
| RD. | 9 | 1259 | | |
| DET. | 0 | 286 | | |
| RD. | 4 | 560 | | |
| DET. | 0 | 686 | | |

Zero Station @ Bridge
Sta. 98+19



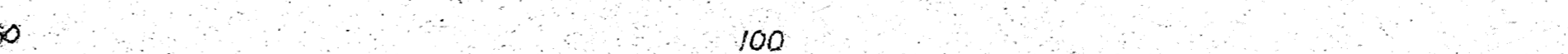
| | | | | |
|------|---|-----|--|--|
| RD. | 0 | 0 | | |
| DET. | 0 | 236 | | |
| DET. | 0 | 44 | | |
| DET. | 0 | 0 | | |

97+72
Zero Station @ Detour Bridge
97+62



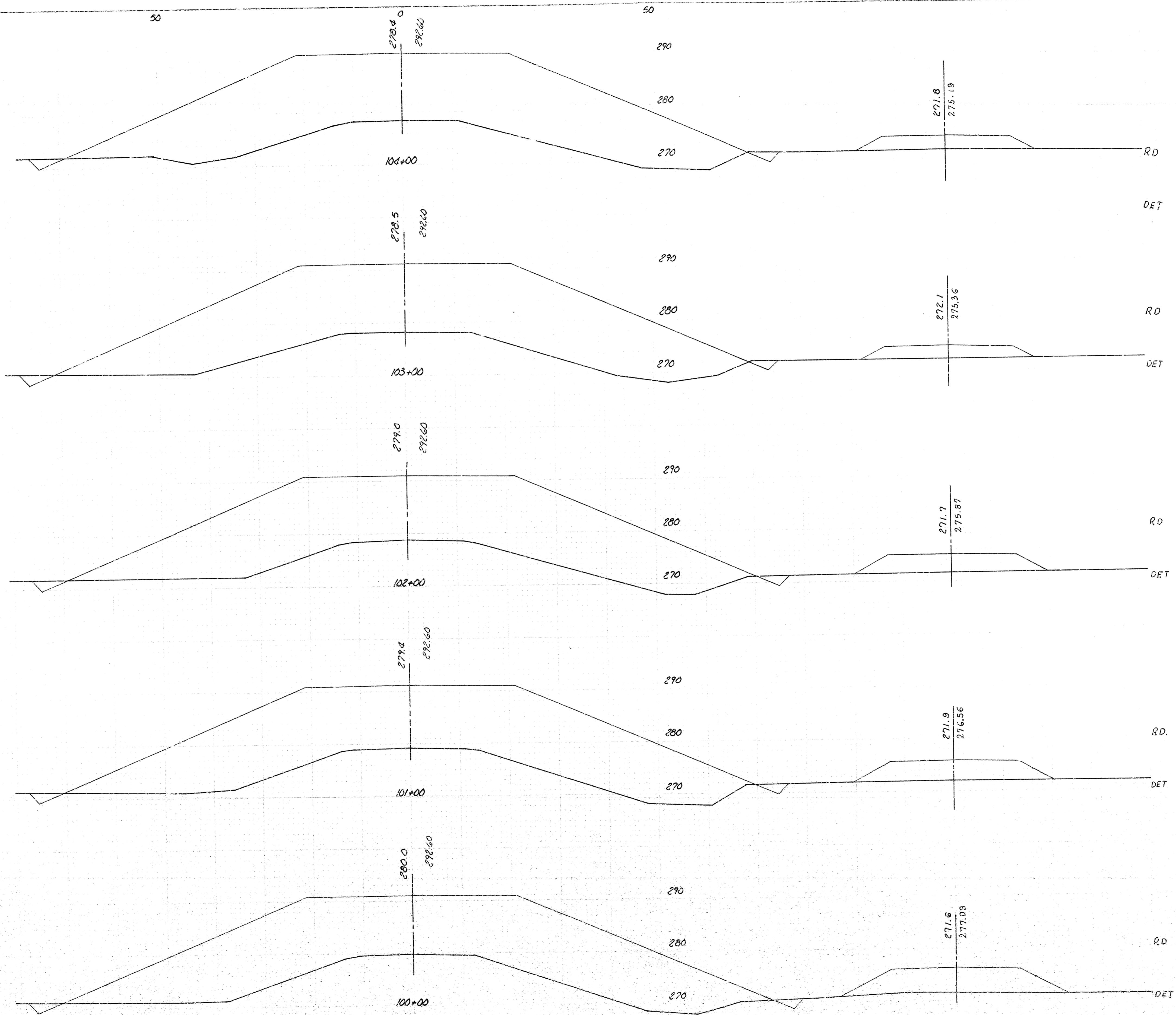
| | | | | |
|------|---|-----|--|--|
| DET. | 0 | 0 | | |
| DET. | 0 | 39 | | |
| DET. | 0 | 212 | | |
| DET. | 0 | 462 | | |
| RD. | 0 | 0 | | |

Zero Station @ Bridge
96+71



| | | | | |
|-----|---|-----|--|--|
| RD. | 4 | 604 | | |
|-----|---|-----|--|--|

| | | | |
|---------------------------------|------|--------|------|
| CORPS OF ENGINEERS CONTRACT NO. | | | |
| DA-34-066-CIVENG-62-1312 | | | |
| JOB NO. 3615 | | | |
| END AREA | | VOLUME | |
| CUT | FILL | CUT | FILL |

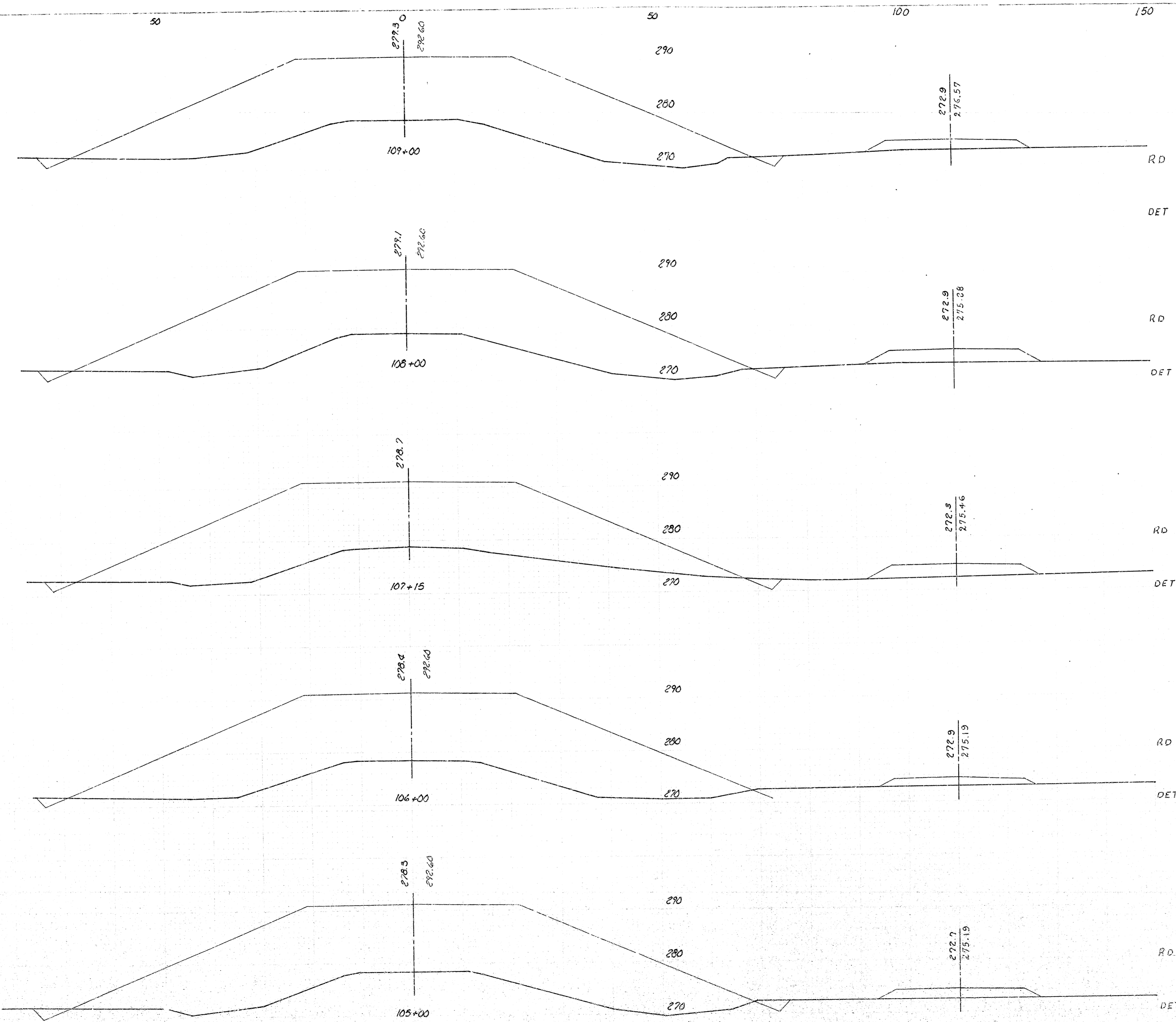


| | | | | |
|-----|----|------|-------|------|
| RD | 11 | 1535 | | |
| DET | 0 | 80 | | |
| | | | RD 41 | 5674 |
| | | | DET 0 | 278 |
| RD | 11 | 1529 | | |
| DET | 0 | 70 | | |
| | | | RD 43 | 5572 |
| | | | DET 0 | 333 |
| RD | 12 | 1480 | | |
| DET | 0 | 110 | | |
| | | | RD 44 | 5496 |
| | | | DET 0 | 444 |
| RD | 12 | 1488 | | |
| DET | | 130 | | |
| | | | RD 43 | 5456 |
| | | | DET 0 | 541 |
| RD | 11 | 1458 | | |
| DET | 0 | 162 | | |
| | | | RD 41 | 5339 |
| | | | DET 0 | 639 |

CORPS OF ENGINEERS CONTRACT NO.
DA-34-066-CIVENG-62-1312
JOB NO. 3615

36
44

| END AREA | | VOLUME | |
|----------|------|--------|------|
| CUT | FILL | CUT | FILL |

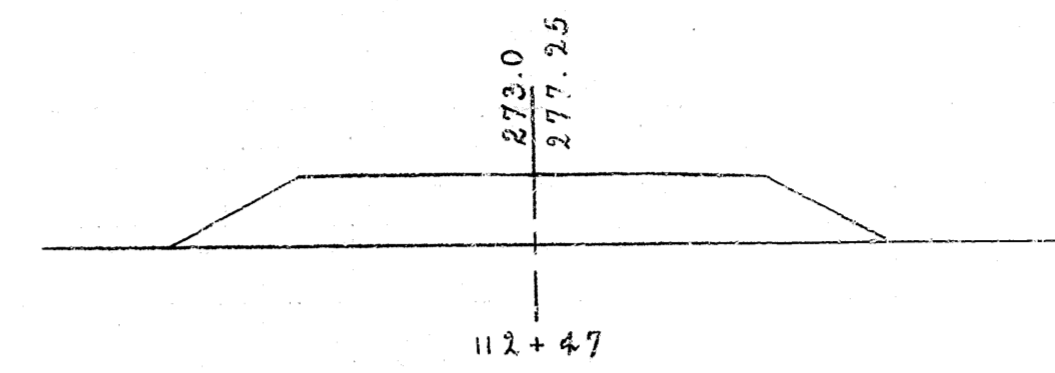


| | | | | |
|-----|----|------|-----|---------|
| RD | 10 | 1400 | | |
| DET | 0 | 54 | | |
| | | | RD | 37 5241 |
| | | | DET | 0 254 |
| RD | 10 | 1430 | | |
| DET | 0 | 83 | | |
| | | | RD | 31 4297 |
| | | | DET | 0 241 |
| RD | 10 | 1300 | | |
| DET | 0 | 70 | | |
| | | | RD | 43 5857 |
| | | | DET | 0 243 |
| RD | 10 | 1450 | | |
| DET | 0 | 44 | | |
| | | | RD | 41 5474 |
| | | | DET | 0 180 |
| RD | 12 | 1506 | | |
| DET | 0 | 53 | | |

| | | |
|-----|----|------|
| RD | 43 | 5631 |
| DET | 0 | 246 |

| | | | |
|---------------------------------|------|--------|------|
| CORPS OF ENGINEERS CONTRACT NO. | | | |
| DA-34-066-CIVENG-62-1312 | | | |
| JOB NO. 3615 | | | |
| END AREA | | VOLUME | |
| CUT | FILL | CUT | FILL |

37
44



DET 0 115

DET 0 60

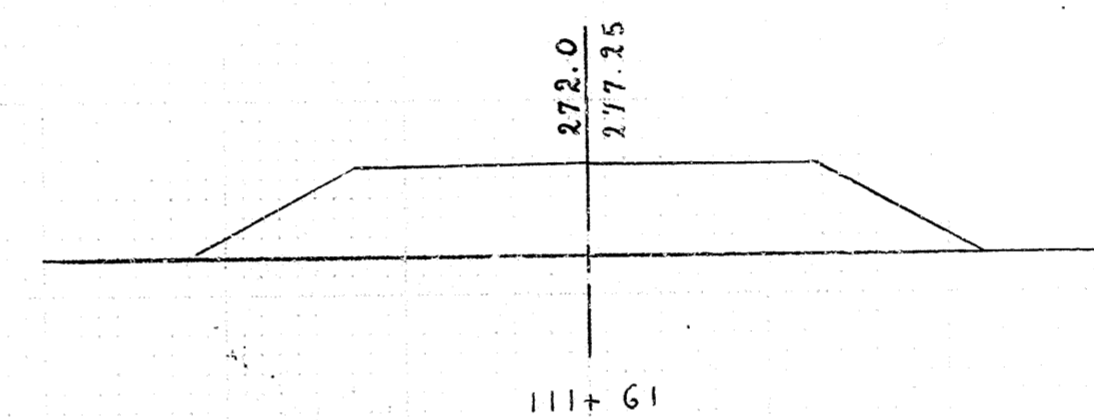
112 + 19
0 - section

DET 0 0

DET 0 0

111 + 89
0 - section

DET 0 0

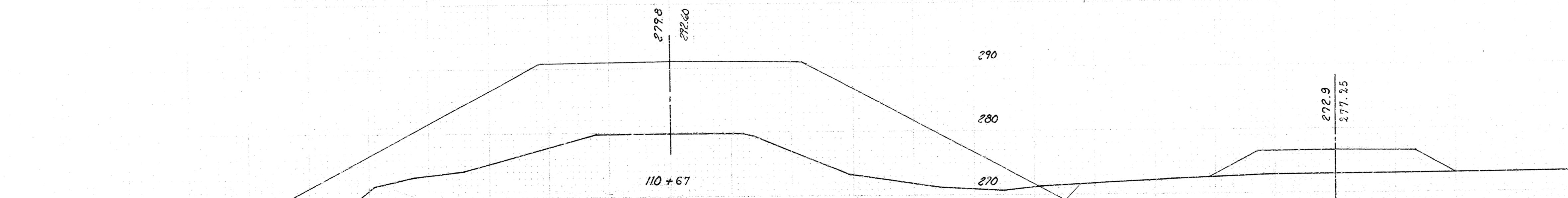


DET 0 164

DET 0 85

110 + 92
0-section

RD 5 589
DET 0 476



RD 20 1273

DET 0 120

277.9
272.60

110 + 00

270

280

270

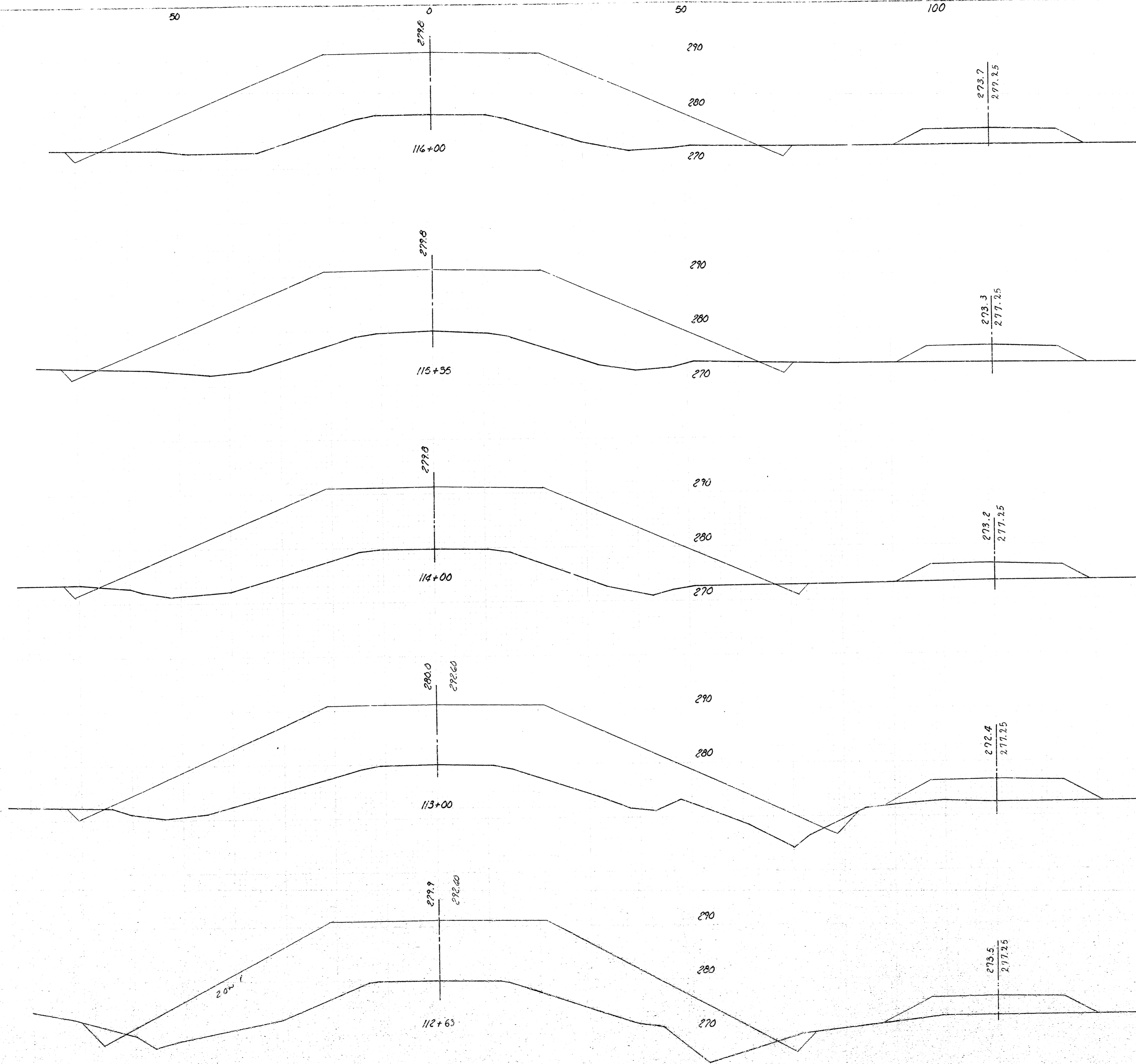
272.9
277.08

RD 10 1334

DET 0 113

| | | | |
|---------------------------------|------|--------|------|
| CORPS OF ENGINEERS CONTRACT NO. | | | |
| DA-34-066-CIVENG-62-1312 | | | |
| JOB NO. 3615 | | | |
| END AREA | | VOLUME | |
| CUT | FILL | CUT | FILL |

38
44



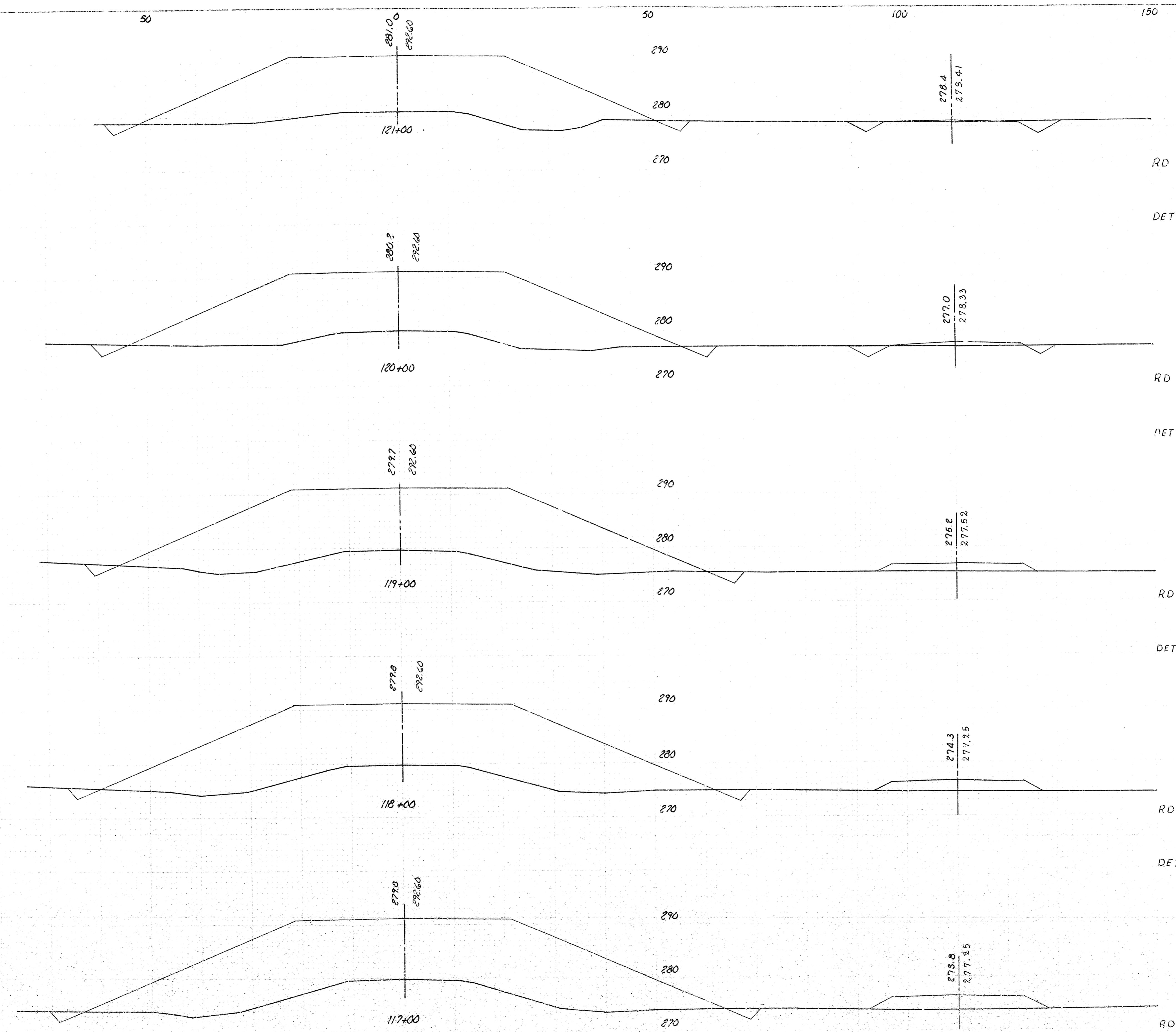
| | | | | |
|-----|-----|-------|------|--|
| RD | 11 | 12.75 | | |
| DET | 0 | 85 | | |
| | RD | 25 | 3083 | |
| | DET | 0 | 218 | |
| RD | 10 | 1287 | | |
| DET | 0 | 96 | | |
| | RD | 41 | 5614 | |
| | DET | 0 | 413 | |
| RD | 9 | 1320 | | |
| DET | 0 | 96 | | |
| | RD | 28 | 4948 | |
| | DET | 0 | 444 | |
| RD | 6 | 1352 | | |
| DET | 0 | 144 | | |
| | RD | 10 | 1827 | |
| | DET | 0 | 180 | |
| RD | 9 | 1315 | | |
| DET | 0 | 118 | | |
| | RD | 7 | 1047 | |
| | DET | 0 | 69 | |

HOWARD, NEEDLES, TAMMEN & BERGENDORF
CONSULTING ENGINEERS
KANSAS CITY, KANSAS NEW YORK, NEW YORK

O-A 112+20 (Roadway)

Sheet No. of Sheets

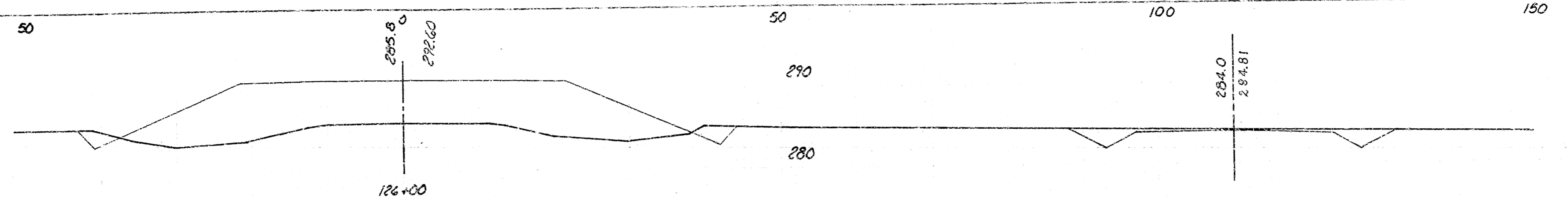
| | | | |
|---------------------------------|------|--------|------|
| CORPS OF ENGINEERS CONTRACT NO. | | | |
| DA-34-066-CIVENG-62-1312 | | | |
| JOB NO. 3615 | | | |
| END AREA | | VOLUME | |
| CUT | FILL | CUT | FILL |



| | | | | |
|-----|----|------|-----|------|
| RD | 11 | 850 | | |
| DET | 19 | 6 | | |
| | | | RD | 43 |
| | | | DET | 59 |
| | | | | 3357 |
| | | | | 37 |
| RD | 12 | 963 | | |
| DET | 13 | 14 | | |
| | | | RD | 44 |
| | | | DET | 24 |
| | | | | 3787 |
| | | | | 98 |
| RD | 12 | 1082 | | |
| DET | 0 | 39 | | |
| | | | RD | 44 |
| | | | DET | 0 |
| | | | | 4143 |
| | | | | 185 |
| RD | 12 | 1155 | | |
| DET | 0 | 61 | | |
| | | | RD | 44 |
| | | | DET | 0 |
| | | | | 4528 |
| | | | | 241 |
| RD | 12 | 1290 | | |
| DET | 0 | 69 | | |
| | | | RD | 43 |
| | | | DET | 0 |
| | | | | 4750 |
| | | | | 285 |

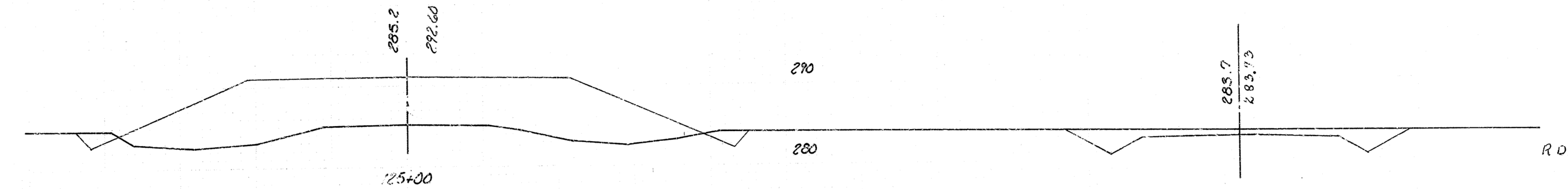
| | | | |
|---------------------------------|------|--------|------|
| CORPS OF ENGINEERS CONTRACT NO. | | | |
| DA-34-066-CIVENG-62-1312 | | | |
| JOB NO. 3615 | | | |
| END AREA | | VOLUME | |
| CUT | FILL | CUT | FILL |

40
44



RD 10 387

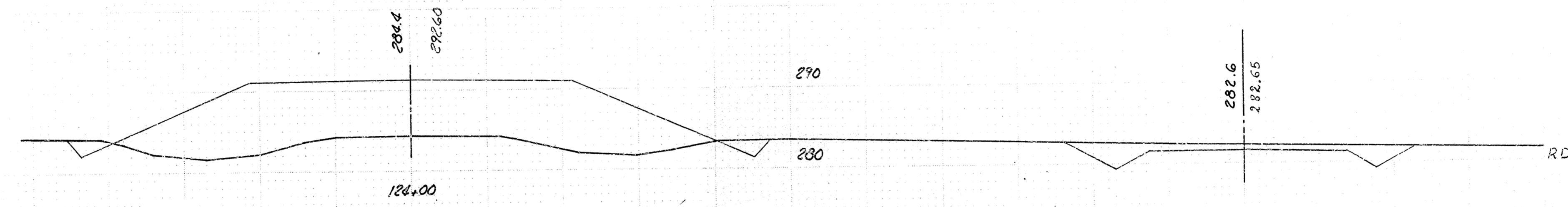
DET 32 0



RD 37 1522
DET 178 0

RD 10 435

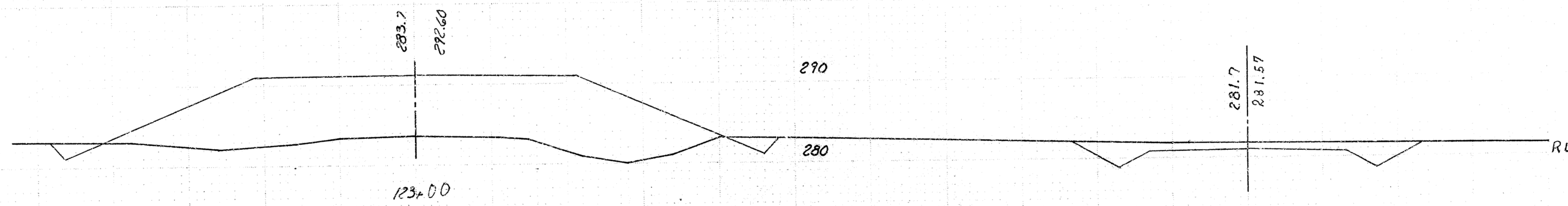
DET 64 0



RD 39 1744
DET 219 0

RD 11 507

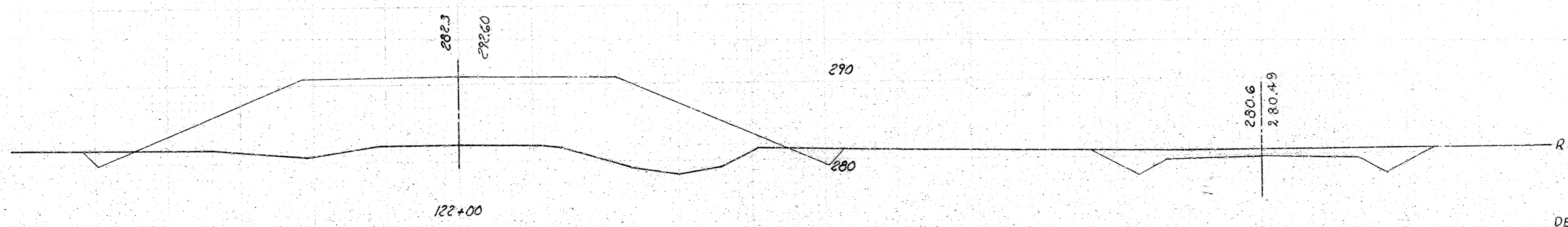
DET 54 0



RD 43 1952
DET 211 0

RD 12 547

DET 60 0



RD 44 2259
DET 231 0

RD 12 673

DET 65 0

RD 43 2820
DET 156 11

Sheet No. of Sheets

ORIGINAL SURVEY
NOTE BOOK
NO.

ORIGINAL SURVEY
NOTE BOOK
NO.

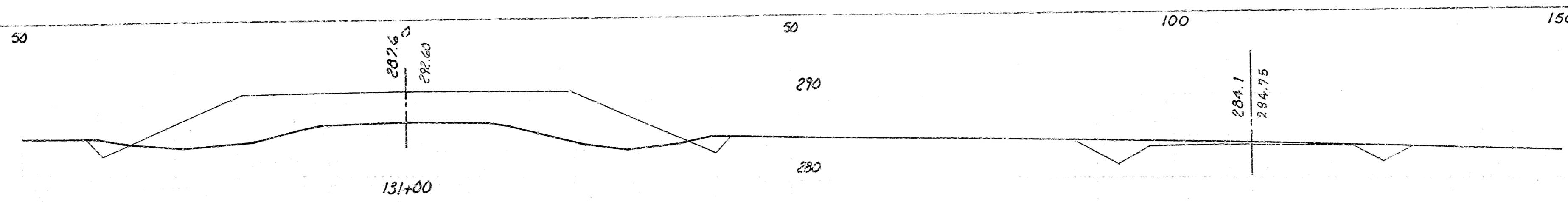
| | |
|-----------|--|
| DATE | |
| BY | |
| NO. | |
| ORIGINAL | |
| SURVEY | |
| NOTE BOOK | |
| NO. | |

| | |
|-----------|--|
| DATE | |
| BY | |
| NO. | |
| ORIGINAL | |
| SURVEY | |
| NOTE BOOK | |
| NO. | |

CORPS OF ENGINEERS CONTRACT NO.
DA-34-066-CIVENG-62-1312
JOB NO. 3615

41
44

| END AREA | | VOLUME | |
|----------|------|--------|------|
| CUT | FILL | CUT | FILL |



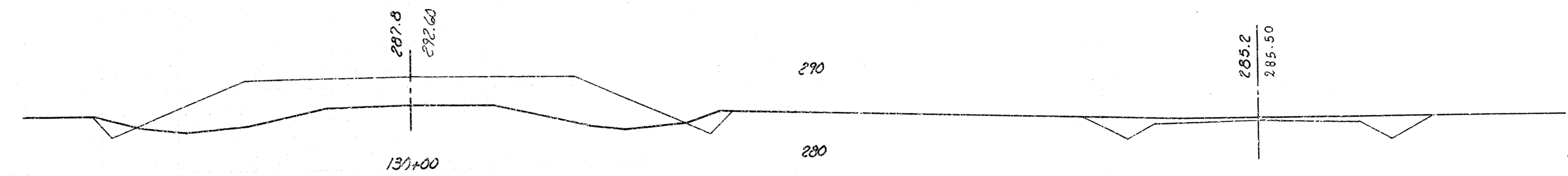
RD 10 288

DET 32 0

RD 39 1028
DET 150 0

RD 11 267

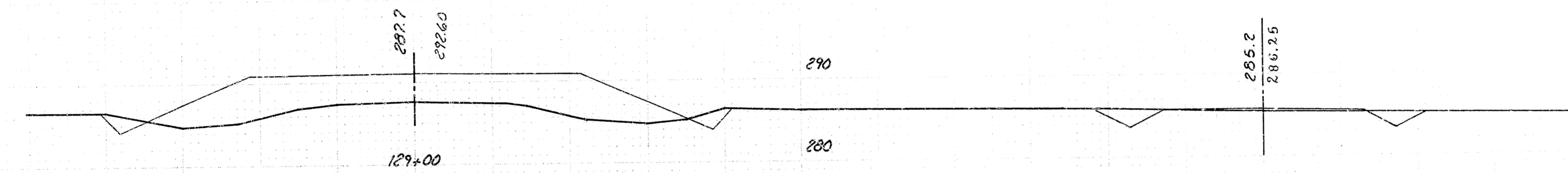
DET 49 0



RD 37 972
DET 120 4

RD 9 258

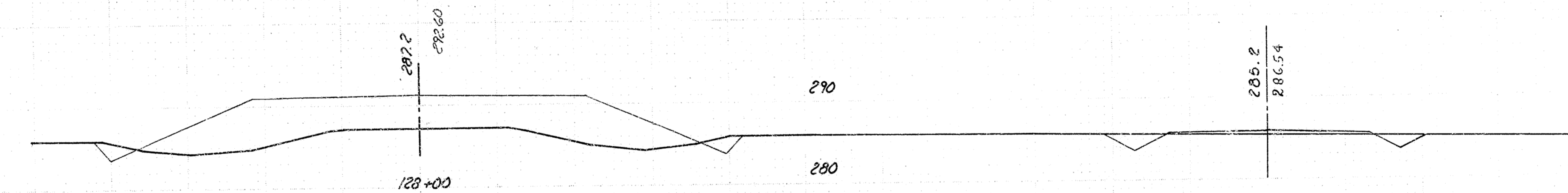
DET 16 2



RD 33 1024
DET 65 13

RD 9 295

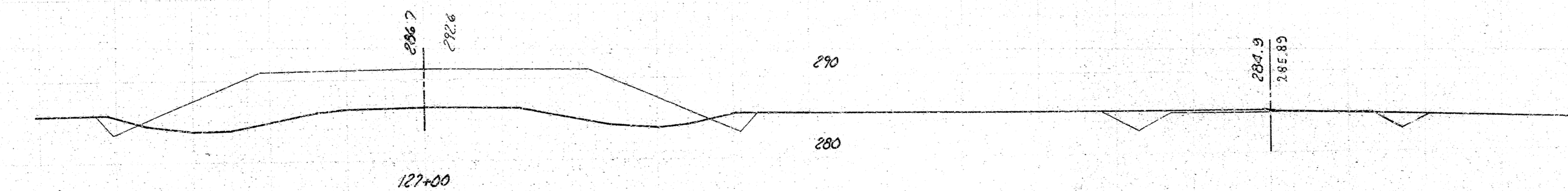
DET 19 5



RD 35 1181
DET 78 11

RD 10 343

DET 23 1

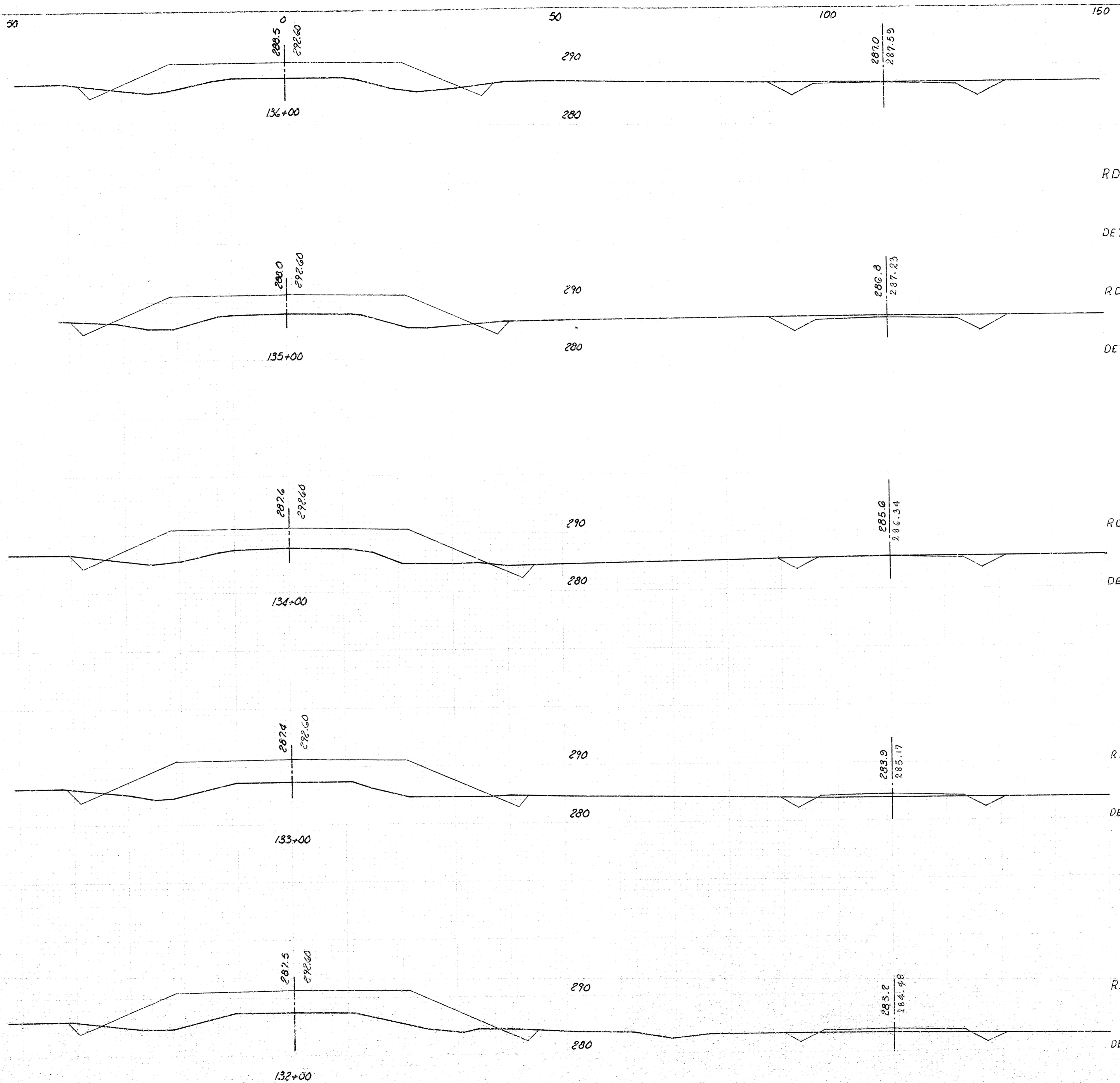


RD 37 1352
DET 102 2

Sheet No. 41 of 44 Sheets

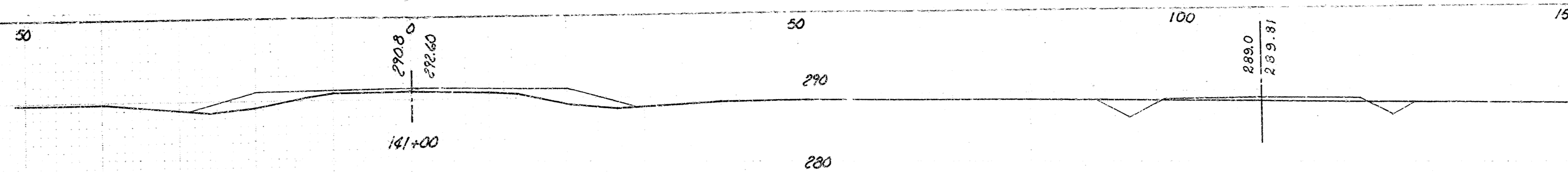
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

| CORPS OF ENGINEERS CONTRACT NO. | | | |
|---------------------------------|------|--------|------|
| DA-34-066-CIVENG-62-1312 | | | |
| JOB NO. 3615 | | | |
| END AREA | | VOLUME | |
| CUT | FILL | CUT | FILL |

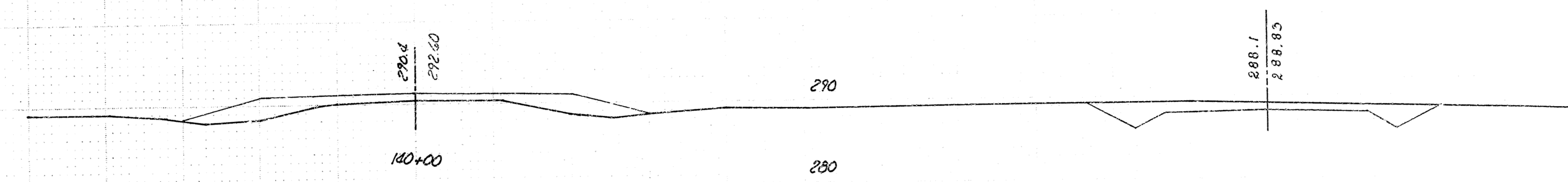


| | | | | |
|-----|----|------|--|--|
| RD | 8 | 193 | | |
| DET | 20 | 0 | | |
| RD | 30 | 193 | | |
| DET | 93 | 0 | | |
| RD | 8 | 235 | | |
| DET | 30 | 0 | | |
| RD | 30 | 946 | | |
| DET | 74 | 0 | | |
| RD | 8 | 276 | | |
| DET | 10 | 0 | | |
| RD | 31 | 1048 | | |
| DET | 31 | 17 | | |
| RD | 9 | 290 | | |
| DET | 7 | 9 | | |
| RD | 31 | 1070 | | |
| DET | 24 | 35 | | |
| RD | 8 | 288 | | |
| DET | 6 | 10 | | |
| RD | 33 | 1067 | | |
| DET | 70 | 19 | | |

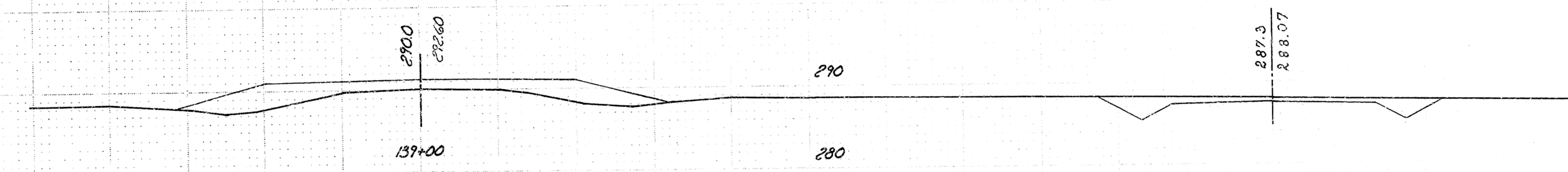
| | | | |
|---------------------------------|------|--------|------|
| CORPS OF ENGINEERS CONTRACT NO. | | | |
| DA-34-066-CIVENG-62-1312 | | | |
| JOB NO. 3615 | | | |
| END AREA | | VOLUME | |
| CUT | FILL | CUT | FILL |



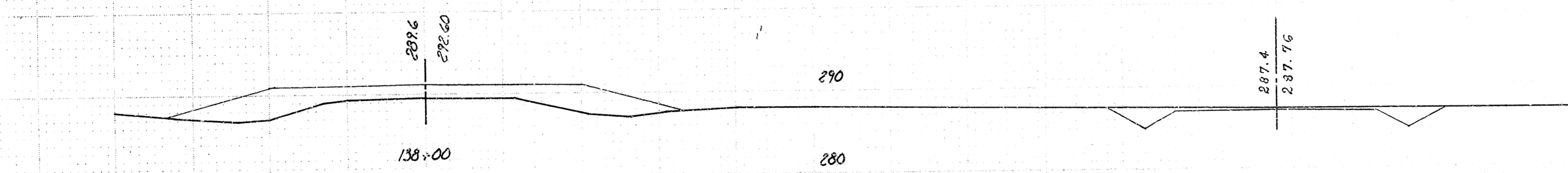
| | | | | |
|-----|---|-----|--|--|
| RD | 0 | 56 | | |
| DET | 8 | 10 | | |
| RD | 0 | 270 | | |
| DET | 0 | 144 | | |



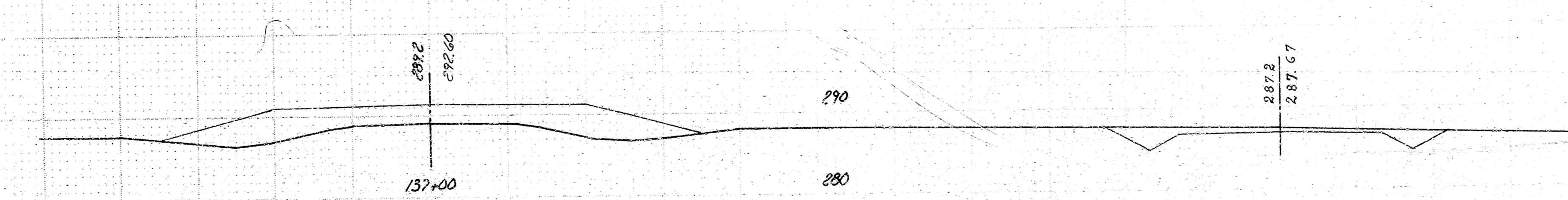
| | | | | |
|-----|----|-----|--|--|
| RD | 0 | 381 | | |
| DET | 70 | 0 | | |
| RD | 0 | 209 | | |
| DET | 0 | 144 | | |



| | | | | |
|-----|----|-----|--|--|
| RD | 0 | 116 | | |
| DET | 43 | 0 | | |
| RD | 0 | 465 | | |
| DET | 0 | 144 | | |



| | | | | |
|-----|----|-----|--|--|
| RD | 0 | 135 | | |
| DET | 35 | 0 | | |
| RD | 0 | 583 | | |
| DET | 0 | 139 | | |

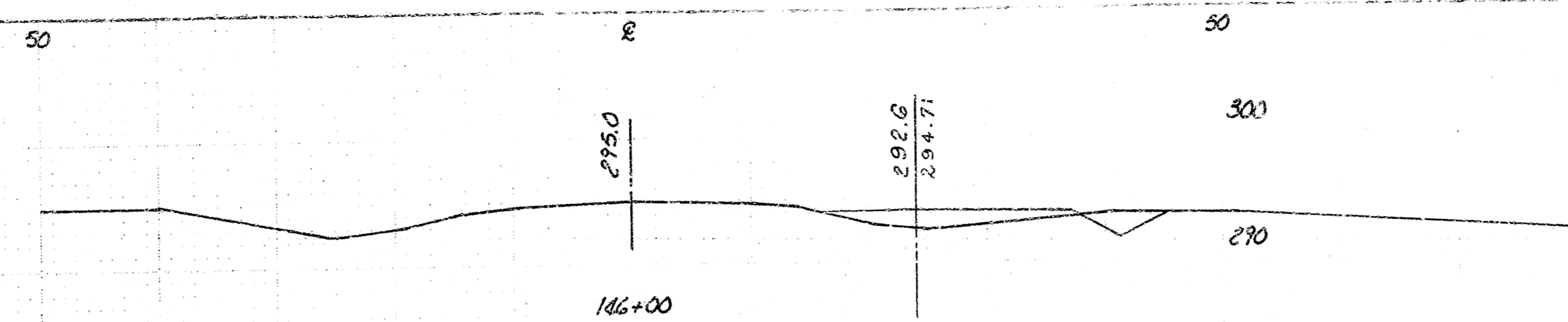


| | | | | |
|-----|----|-----|--|--|
| RD | 0 | 180 | | |
| DET | 40 | 0 | | |
| RD | 0 | 691 | | |
| DET | 0 | 111 | | |

CORPS OF ENGINEERS CONTRACT NO.
DA-34-066-CIVENG-62-1312
JOB NO. 3615

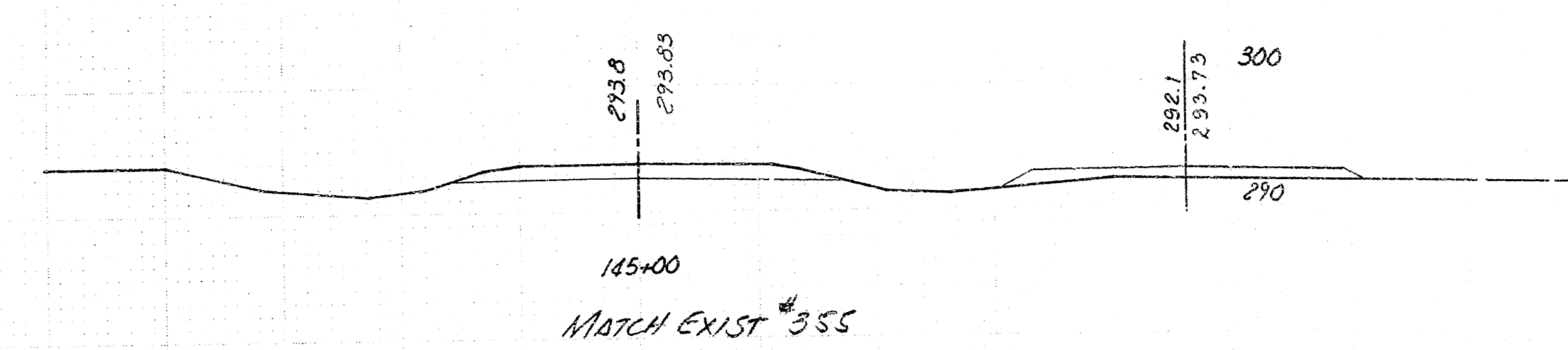
44
44

| END AREA | | VOLUME | |
|----------|------|--------|------|
| CUT | FILL | CUT | FILL |

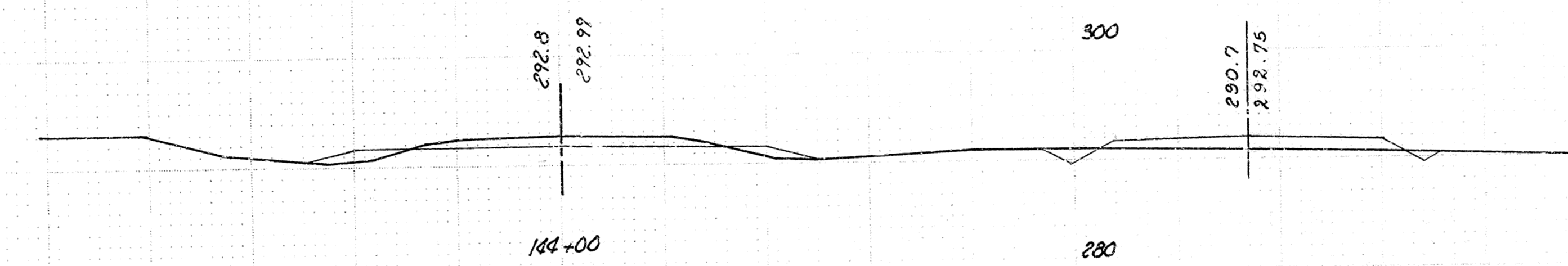


STA. 148+13.84
End Detour

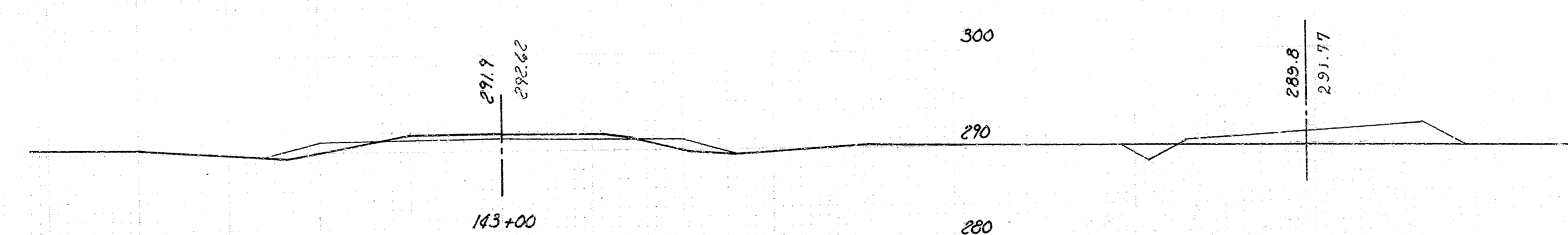
| | | | | |
|-----|----|---|----|----|
| DET | 17 | 0 | | |
| | | | 91 | 87 |



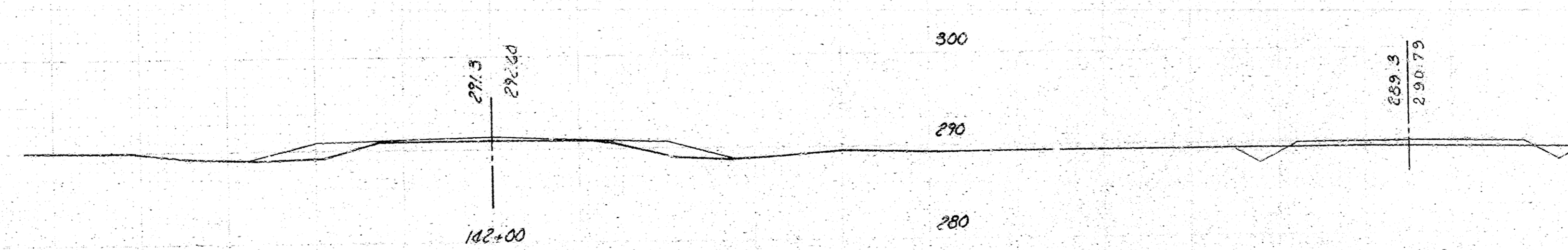
| | | | | |
|-----|---|----|----|----|
| RD | 6 | 22 | | |
| DET | | | 11 | 83 |



| | | | | |
|-----|----|----|-----|-----|
| RD | 19 | 0 | | |
| DET | 0 | 23 | | |
| | | | RD | 124 |
| | | | DET | 9 |
| | | | | 102 |



| | | | | |
|-----|----|----|-----|-----|
| RD | 28 | 7 | | |
| DET | 5 | 32 | | |
| | | | RD | 81 |
| | | | DET | 17 |
| | | | | 133 |



| | | | | |
|-----|----|----|-----|----|
| RD | 16 | 10 | | |
| DET | 4 | 40 | | |
| | | | RD | 33 |
| | | | DET | 17 |
| | | | | 93 |

| | | |
|-----|----|-----|
| RD | 4 | 152 |
| DET | 24 | 37 |